

ISSN[ONLINE] : 2643-9875

ISSN[PRINT] : 2643-9840

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# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS

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**VOLUME 06 ISSUE 09  
SEPTEMBER 2023**

**SJIF IMPACT  
FACTOR : 7.022**

**IJMRA ASI  
SCORE : 1.3**

**CROSSREF DOI  
10.47191/IJMRA**

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**International Journal of Multidisciplinary Research and Analysis**  
**ISSN[Online] : 2643-9875 || ISSN[Print] : 2643-9840**

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## Reconstruction of Religious Education Policy through Regional Regulations of Palu City



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**ABSTRACT:** The aim of this study is to investigate the policy of a city mayor in reconstruction of religious education policy to support local religious education program implementation. This study uses a qualitative case study method and the data was gathered through field observation, in-depth interviews, and written document analysis. The findings show that the Palu city government has issued the law number 4 of 1994 concerning the establishment of a Level two of Palu Municipality. The Palu city government continues to make improvements and improve the quality of people's lives from all government sectors, especially the primary service sector both education and health. Including community welfare following the mandate of Law number 23 of 2014 concerning Regional Government. The regulation states that the implementation of regional government is directed at accelerating the realization of community welfare through improving services, empowerment, and community participation, as well as increasing regional competitiveness by taking into account the principles democracy, equity, justice, and the uniqueness of a region within the system of the Unitary State of the Republic of Indonesia. The Palu Kana Mapande policy program is a generally accepted policy, where the procedure is contained in the annex to the local regulation concerning the 2016 – 2021 Regional Medium Term Development Plan for the city of Palu, which outlines the vision and mission of the elected mayor of Palu. Following the provisions in Law Number 12 of 2011 concerning the Formation of Legislation as amended several times, the latest by Law Number 13 of 2022 concerning the Second Amendment to Law Number 12 of 2011 regarding the Formation of Legislation, there policies formed with the provisions of positive law.

**KEYWORDS:** Regulation reconstruction, religious education, Islamic education, local government, education policy

### I. INTRODUCTION

The administration of education is the right of the government and regional governments, as mandated by the 2003 National Education System Law that the government and regional governments have the right to direct, guide, assist and supervise the implementation of education, and are obliged to provide services and facilities for the performance of quality education for every citizen without discrimination. The government and regional governments are also obliged to ensure the availability of funds to provide education for every citizen from seven to fifteen years. More than that, there are still extensive opportunities for parents/citizens and community groups. There are several forms of the government's role in improving education, namely as a public servant, facilitator, companion, partner, and funder (Sidhu & Taylor, 2009).

For local governments, the implementation of these roles can be realized through policy regulations that serve as an essential guide in the performance of education both in the role of community servant, facilitator, companion, and partner, up to act as a funder following the mandate of laws and regulations. As stated in Law 20 of 2003 concerning the National Education System, the government and regional governments are obliged to provide services and facilities, guarantee the implementation of quality education for every citizen without discrimination and ensure the availability of funds to provide education for every citizen aged seven to with fifteen years.

Policies issued by local governments as part of constitutional responsibilities are based on higher statutory provisions or do not conflict with the above guidelines (Goldsmith, 2002). These policies can be in the form of regional or regional head regulations as the implementation of regional autonomy policies and constitutional responsibilities because education is a mandatory government affair related to essential services, as stated in law 23 of 2014 concerning regional government. At the same time, religion is an absolute government affair which is the authority of the central government which constitutionally can be

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administered by vertical agencies in the provinces as representatives of the central government in the regions. Based on the laws and regulations explained above, the authors can conclude that education is the shared responsibility of all stakeholders, teachers, students, related agencies, local governments, and all components of the nation, including society and the business world.

Fundamental questions in the process of administering education, especially religious education as mandated in Law number 20 of 2003 concerning national education systems, article 12 paragraph (4), article 30 paragraph (5), and article 37 paragraph (3) and government regulation number 55 of 2007 concerning religious and religious education both in the implementation of religious education and religious education in the area, especially Palu City. The study in this dissertation is how religious education policies are constructed in Palu City. In the city of Palu, the capital city of Central Sulawesi, a plurality of people live in the city of Palu, which has different ethnicities, religions, languages, and cultures in the community in Palu. It is a challenge in implementing religious education where law number 20 of 2003 concerning The National Education System (SISDIKNAS) orders that every student receive religious education according to his beliefs from teachers of the same religion.

The implementation of legal provisions based on the conditions in Law 20 2003 concerning the Indonesia National Education System is the spirit of the performance of religious education which is the responsibility of the government, both the central government and regional governments, of course, with the appropriate policy base contained in normative legal provisions in Indonesia. Both in the 1945 Constitution of the Republic of Indonesia (1945 Constitution), Stipulations of the People's Consultative Assembly, Laws, Government Regulations in Lieu of Laws, Government Regulations, Regional Regulations, and District Regional Regulations.

The implementation of religious education is the focus of the analysis of policy construction in the city of Palu, which will then be evaluated so that a reconstruction of the implementation of religious education policies in the city of Palu can be carried out. Apart from analyzing religious education policies, the author will also deepen the social and religious construction of religious communities in the city of Palu through three educational institutions, namely: Formal, Non-formal, and Informal educational institutions, which have been ongoing and have become the objective reality of the people of the city of Palu.

The involvement of the local government can be seen in the existence of policies that encourage the implementation of religious education, such as the Palu Kana Mapande program, Palu Recite, Bina Imtak through religious activities such as recitations and the funeral prayer process for Muslims, "Rohani Song" for Christians, "Suci Wedha" for Hindus and "Dharma Pada" for Buddhists. In addition, the Ministry of Religion for the city of Palu carried out the "Magrib Recite" program (Achdiyaradzan, Nurdin, & Alhabsyi, 2022; Pratama, Pettalongi, & Nurdin, 2022; Santoso, Nurdin, & Pettalongi, 2022). Even the reality of the people of Palu City has carried out religious programs such as the Raudha Festival, Mandura Gazette Festival, Kalopa Lebaran Festival, and remembrance activities every Friday, which were held at Talise after the disaster on September 28, 2018.

The Palu city government has carried out the religious education policy journey with several policy programs, such as the Palu Kana Mapande policy program, the Mayor Hidayat period, then the activities of the Hadianto Rasyid period with a policy on Friday as Student Development Day where every Friday is devoted to religious studies starting at 07.00 a.m to 3 p.m. On that day, only study and practice each religion's teachings and do not interfere with other subjects. Apart from the policies mentioned above, in 2017, the Palu city government issued a policy through a circular issued by the head of the Palu city education office relating to the implementation of worship activities within Elementary Schools or Madrasah Ibtidaiyah and Junior High Schools or Madrasah Tsanawiyah in the city of Palu. Following circular letter number 005/149/Disdik/2017 concerning delivery of worship activities.

Some of these various kinds of policies have been implemented, some are currently being implemented, and some are also in the process of implementing. And almost all of these policies are constructed in decrees, regional head directives, or programs from the Regional Apparatus Organization. They are not built-in regional regulations, even though one of the advantages of the policies contained in regional regulations is that these policy programs will still be implemented and can be controlled. Implementation and other supporting policies by the community in general, whoever the Regional Apparatus Organization leader or the regional head is. Therefore, the author took the title of this dissertation, namely "Reconstruction of Religious Education Policy through Regional Regulations of the City of Palu," by making social construction theory according to Peter L Berger and Thomas Luckman as a primary ingredient in policy construction.

In addition to the theory of social construction, the author also makes Van Meter and Van Horn's theory of policy analysis (Van Meter & Van Horn, 1975) with their six variables the basis for determining the concept and implementation of religious education policies. In addition, the author also carried out a policy reconstruction based on the provisions of the applicable laws and regulations, namely Law number 12 of 2011 concerning the Formation of Legislation, which was last amended by Law number 13 of 2022 concerning amendments to Law number 12 of 2011 concerning Formation of Legislation.

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### II. LITERATURE REVIEW

#### A. *Theory Study of Policy Construction*

Policy reconstructionism is two words that try to mix and match the theory of reconstructionism and the theory of policy (Van Meter & Van Horn, 1975). Reconstructionism has historical roots in education, that education is considered an agent of change, and a social and economic order based on social and economic phenomena is a factor in discrimination (McKernan, 2013). The theory of reconstructionism aims to overcome the crisis of modern life. Meanwhile, discussions related to policy theories are in law and administration and can also be in the political field.

However, the meeting point of reconstructionism and policy is in the social area. Both of them have the same direction, namely to create a new order of life-based on society's social reality, which gives birth to concepts and ideas for rearranging based on knowledge and understanding by reconstructing policies based on social construction theory (Kloppenburger Jr., 1991). However, the discussion of policy theories is based on the ideology of a country where a policy is issued. Indonesia is a country that adheres to a democratic system, with a government system of the people, by the people, and for the people. Democracy is a series of ideas and principles regarding freedom, along with practices and procedures that convey the meaning of respect for human dignity. The value of freedom of expression and respect for human identity is one of the spirits of democracy.

The embodiment of democracy in Indonesia is the House of Representatives and the Regional House of Representatives, which have functions and duties as legislative bodies, namely those that form and compile laws and regulations. In addition, the House of Representatives also functions to formulate budgeting both for the government in a national sense through the House of Representatives of the Republic of Indonesia and budgeting in the regions through the Regional House of Representatives, which are reflected in the posture of the National Revenue and Expenditure Budget or the Regional Revenue and Expenditure Budget. Other functions of the House of Representatives besides forming statutory regulations and budgeting, the House of Representatives also has the oversight function of the implementation of statutory regulations that have been made. Even the regional head regulations or regional head policies are the duties and authorities of the Regional House of Representatives as a supervisory institution that the constitution has mandated following Law Number 23 of 2014 concerning regional government.

There is a policy formulation, policy implementation, or policy evaluation, and environmental aspects that must receive careful consideration so that they do not conflict with the functions of the state or the government itself. In policy studies, after identifying the problem, then formulating policy proposals, after being selected, the policy is approved for implementation. Then an evaluation is carried out to analyze the consequences of the policy. Pressman and Wildavsky (2014) stated that a verb to implement should be directly related to a policy. So for the two pioneering experts in this implementation study, implementing policies needs to receive careful attention. While Van Meter and Van Horn formulate the implementation process as follows:

*“those action by public or private individuals (or group) that are directed at the achievement of objective set forth in prior policy decision”<sup>1</sup>*

#### B. *Theory Study of Religious Education*

Correct and quality education will give birth to civilized individuals, eventually leading to a moral, social life. Unfortunately, even though educational institutions have quality and facilities, these institutions still do not produce civilized individuals. The reason is that the vision and mission of education, which leads to the formation of civilized human beings, should be addressed in the goals of educational institutions. Religious education for humankind is a system and a way to improve the quality of life in all spiritual fields (Roebben, 2012). In the history of human life on this earth, there is hardly a group of people who do not use education to civilize and improve the quality of life. Religious education at present is needed by the community so that the government, as the provider of formal education, always promotes religious education for the community because religious education is expected to give birth to responsible and creative next generations of human beings. This is in line with the goals of national education, which have significant plans for the continuity of the life of a developing nation.

As a large nation, Indonesia is inhabited by 275 773.8 people consisting of 139 388.9 male residents and 136 384.8 female residents with diverse religions, ethnicities, cultures, languages, regions, social strata, and geographical conditions. The plurality of religions in Indonesia is a reality that cannot be denied. This can be a potential for the realization of the ideals of the nation according to the opening text of the 1945 Constitution. Still, it can also become a tool to divide the country if it needs to be regulated by prioritizing national unity. To become a great nation, the coaching process begins with the nation's generation by instilling the values of unity in the differences between communities.

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<sup>1</sup>Solichin Abdul Wahab, *Analisis Kebijakan dari formulasi ke penyusunan Model-Model Implementasi Kebijakan Publik*, (Cet. V; Jakarta:Sinar Grafika Offset, 2016), 135

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Efforts to cultivate the character of the nation and state within the framework of "Unity in Diversity" is necessary to form a religious spirit and religious behavior because religious principles are different in terms of Worship and Aqidah. Still, the meeting point is in the principle of muamalah or social principles of nationality. So religious education must be able to encourage every adherent to practice their religious teachings by respecting the principles of worship of each believer as well as the principles of faith in their beliefs and promoting religious tolerance in social and human relations.

Pancasila, as the source of all sources of law, becomes a doctrine and, at the same time, a national mindset that must be actualized in the life of the nation and state with the motto "Unity in Diversity" or different but still one. With religious diversity, the government must be able to guide the community, especially the nation's next generation, through education. Especially religious education because, in principle, every religion teaches peace and maintains a harmonious life individually and in groups. The responsibility for education which the government carries out with all its layers up to the regional government and its apparatus must be able to work together to realize the ideals of the nation, namely "to educate the life of the nation" according to the mandate of our constitution in the preamble of the 1945 Constitution in the fourth paragraph.

The implementation of education for the Indonesian nation in this era of globalization is essential because, through education, the success of all the desired development implementations can be determined in the form of physical development, as well as mental and spiritual. Education is also an absolute requirement for a just and prosperous society, following the goals of national education as stated in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, which explains that National Education aims to develop the potential of students to become human beings. Those who believe in and fear God Almighty have noble characters, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens.

Based on these educational goals, we need to understand education and religious education to unravel some definitions of education and religious education as essential instruments for the Indonesian nation. Then the author will describe what is the meaning of education according to experts and according to law. While the definition of religion is a system that regulates the belief and worship of God and rules related to customs and worldviews that connect humans with the order of life, the implementation of religion can be influenced by local traditions. Etymologically, religion comes from Sanskrit, which consists of the words "A," no, and "gama," chaotic. Religion is a rule that prevents humans from chaos and leads them to live in order. Balinese language Religion = regulations that govern the relationship between humans and God. Igama = Human relationship with God / Gods. Ugama = Human relations with each other. Arabic = Din = describes the relationship between two parties where one has a higher position than the other.

## **II. METHODOLOGY**

This study uses a qualitative case study method (Nurdin, Scheepers, & Stockdale, 2022; Nurdin, Stockdale, & Scheepers, 2013) to investigate the reconstruction of religious education in Palu city, Indonesia (Nurfaiqah, Nurdin, & Alhabsyi, 2022; Rahmawati, Nurdin, & Pettalongi, 2022). Data were collected through direct observation in the case field and in-depth interviews with teachers and the elementary school principal (Jumahir, Nurdin, Pettalongi, Fitri, & Aftori, 2023; Nurdin, 2023). Written materials were also analyzed to understand the strategy of Palu city mayor in reconstructing regulation regarding religious education policy. Data analysis consists of several procedures, which include reduction and verification techniques with various data sources (Alamsyah, Pettalongi, & Nurdin, 2023; Arif, Nurdin, & Elya, 2023). The reduced data was then analyzed, reflecting on the theoretical concepts used in this study. Finally, the results were presented based on thematic issues found in the data (Muhaimin, Nurdin, & Alhabsyi, 2023; Nurdin, Agam, & Adawiyah, 2023; Nurdin, Pettalongi, Ahsan, & Febrianti, 2023), which show the insight relating to the reconstruction on religious education strategy in Palu city, Indonesia.

## **III. RESULTS AND DISCUSSION**

### **A. Construction of Religious Education Policy in Palu City**

Journey of the Palu city government since the issuance of law number 4 of 1994 concerning the establishment of a Level II Palu Municipality until now, the Palu city government continues to make improvements and improve the quality of people's lives from all government sectors, especially the primary service sector both education and health. Including community welfare following the mandate of Law number 23 of 2014 concerning Regional Government in point b, considering it states that the implementation of regional government is directed at accelerating the realization of community welfare through improving services, empowerment, and community participation, as well as increasing regional competitiveness by taking into account the principles democracy, equity, justice, and the uniqueness of a region within the system of the Unitary State of the Republic of Indonesia.

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Based on Law 23 2014 concerning regional government, it is stated that government affairs are divided into absolute, concurrent, and general government affairs. At the same time, the scope of local government is simultaneous government affairs which include two government affairs, namely mandatory government affairs and optional government affairs. Meanwhile, government affairs must be divided into two: government affairs related to basic services and government affairs not related to basic services. Education is one of the government affairs related to basic services. Educational policy products born in Palu are at least divided into three policies: informal education, non-formal education, and formal education. The policies that have been accepted and implemented in the city of Palu are the Maghrib Recite Community Movement program, the Palu Kana Mapande program, the Palu Recite program, and the education unit level image building program carried out every Friday.

### ***B. Palu Kana Mapande Program***

The Palu Kana Mapande policy program is a generally accepted policy, where the procedure is contained in the annex to the local regulation concerning the 2016 – 2021 Regional Medium Term Development Plan for the city of Palu, which outlines the vision and mission of the elected mayor of Palu. Following the provisions in Law Number 12 of 2011 concerning the Formation of Legislation as amended several times, the latest by Law Number 13 of 2022 concerning the Second Amendment to Law Number 12 of 2011 regarding the Formation of Legislation, there policies formed with the provisions of positive law.

This type and hierarchy of laws and regulations in the context of theory and philosophy in their development originated in the German state, which developed far in the continental European legal system, one of which was discovered by Burkhardt Kreams, a legal scholar who is involved in statutory studies. The concept is found in the science of legislation (*Geetzgebungswissenschaft*). The science of legislation is an interdisciplinary science related to political science and sociology. In its development, the science of legislation is carried out in-depth studies to find various opinions and variants. One of the well-known opinions of legal scholars in Indonesia is Rosjidi Ranggawidjaya, and he argued that the existence of the science of law as a science is still being questioned by some people because as a science, is it a science that stands alone or is a branch of other sciences. Regarding the debates on the pros and cons of the science of legislation, it can be understood that the science of legislation is a branch of legal science that focuses its study on statutory regulations, namely those relating to written decisions issued by authorized officials to regulate behavior and bind in general.

Policies for making changes in people's behavior, directing people to act according to the direction and corridors of the government, and controlling people's behavior are contained in regional legal products. Regional legal products are a form of legalization of local government actions. Regional legal products that have status or position in the optics of constitutional law and administrative law are regional regulations. Regional regulations are included in the genus, type, and hierarchy of laws and regulations following the principle of legal preference. The position of regional rules is very specific compared to regional legal products in the form of arrangements and stipulations because it is the only regional law product that requires joint approval between the District head and Regional House of Representatives so that its legalization and constitutional status are very special and unique compared to other regional legal products.

The Palu Kana Mapande program was echoed and concentrated to apply in Palu City, not expressly and limitedly contained in 1 (one) Regional Regulation. Instead, it is regulated in the Annex to Palu City Regional Regulation Number 5 of 2016 regarding the 2016-2021 Regional Medium-Term Development Plan as last amended by Palu City Regional Regulation Number 7 of 2019 concerning the Second Amendment to Palu City Regional Regulation Number 5 of 2016 concerning Development Plans The 2016-2021 Regional Medium Term is emphasized explicitly in Chapter III which contains the Systematics of the Regional Medium Term Development Plan. In detail, the policy process in the legal politics of the Regional Government in the era of the Hidayat-Sigit Purnomo Said administration was as described in the vision and mission when participating in the 2015 Regional Head Election contestation and included in the Medium Term Development Plan as direction, guidance, and implementation as well as evaluation of its policies in law politics diorama.

Policy construction in the Regional Medium-Term Development Plan Regional Regulation is a policy that, in principle, is a Legal Preference of which there are two types, namely *Lex Specialist derogat Lex Generalis*. Generally, the preparation of Regional Medium-Term Development Plan Regional Regulations refers to Law No. 12 of 2011 concerning Guidelines for the Preparation of Legislation and Regulations with their amendments. However, some specific things need to be listed in the general rules following the preparation in Regulation of the Minister of Home Affairs Number 86 of 2017. For example, the trial refers to the vision and mission, and there is an initial design. A particular evacuation involves many elements of the government unit stakeholders, and the evaluation follows. Harmonization with the Central Medium Term Development Plan, Government Work Plans, and so on.

## **Reconstruction of Religious Education Policy through Regional Regulations of Palu City**

### **C. Palu Kana Mapande policy planning mechanism**

Every policy issued by the government, whether temporary or definitive, is a series of legal actions (bestuurhendeling). The government is obliged to designate the legal basis of every government action. The area of discussion on government legal action is one-sided government legal action. According to Mahfud MD, the discussion of legal politics is to achieve the state's goals with 1 (one) national legal system. In law, especially in administrative law as the realm of public law. Planning has a significant and strategic position in smoothing every policy listed in public documents. Planning is carried out to test how far the consistency of the government is in carrying out programs and activities that have been agreed upon through the mechanism as stated in the provisions of laws and regulations.

Along with the growth and development of society and in line with the conception of a modern legal state which gives obligations to the government to realize state goals, The purpose of state life includes various dimensions. Against these multiple dimensions, the government makes plans. A plan is a tool for implementation and should be based on a schedule. The plan is the whole process of thinking and carefully determining what will be done in the future to achieve the stated goals. Planning is the first organic function of administration and management. The reason is that without a plan, there is no basis for carrying out specific activities in the context of achieving goals.

Planning as part of government instruments such as laws and regulations, state administrative decisions, policy regulations, permits, and civil law instruments is essential in the struggle for one-sided government actions called authority. The government instruments referred to in this case are the tools or means used by the government in carrying out its duties. In carrying out government duties, the government carries out various legal actions using means or instruments. Besides that, the government also uses different juridical instruments in carrying out activities to regulate and carry out government and social affairs. One informant said:

"As an organization, the government has goals to be achieved, which are no different from organizations in general, especially in terms of activities to be implemented to achieve goals outlined in the form of plans. The plan is an inevitable part of an organization as an initial step for achieving goals. Some say that running a government is planning with foresight."

If planning is correlated with aspects of policy formulation in various fields, it requires legacy to be carried out. This process is interpreted as a form of government consistency from planning to implementing the policy in the form of regional law products. According to the provisions of Article 1 point 1 of Law Number 12 of 2011 concerning Formation of Legislation as amended by Law Number 13 of 2022 concerning the Second Amendment to Law Number 12 of 2011 concerning Formation of Legislation, it states that "Formation of Laws and Regulations is the making of Legislation which includes the stages of planning, drafting, discussing, validating or stipulating, and enacting." Planning instruments in policies made by local law products have their procedures. Planning for making regional law products comes from the Regional Government and the Regional House of Representatives. Regional law product planning instruments include activities for preparing local government support, planning for drafting cumulative open regional regulations, and planning for drafting Local regulations outside the Regional Regulation Formation Program.

In the planning stage, every policy (discretion) that is to be formed by Regional Regulation, the two tools for administering the regional government carry out meeting activities, especially in the type of Regional House of Representatives meetings carried out through the Regional Regulation Forming Agency. The Regional House of Representatives Regional Regulation Formation Agency follows statutory provisions, namely drafting a regional regulation formation program that contains an ordered list of regional regulation drafts based on the priority scale for forming regional regulation drafts accompanied by reasons for each budget year within the Regional House of Representatives and coordinating the preparation of the Regulation formation program The area between the Regional House of Representatives and the Local Government.

Meetings of the Regional Regulation Formation Agency determine how urgent it is to submit the Regional Regulation Draft, previously included in the Regional Regulation Formation Program proposal. The initiating Regional Apparatus or the proposing Regional House of Representatives are obligated to give confidence to the Perda Formation Board to approve the contents of the Draft Regional Regulations, the mechanism of which will then be decided and determined in a Plenary Session as the highest decision-making forum. The Islamic education policy included in the Palu City Regional Medium-Term Development Plan through the legal basis of the Regional Regulation has carried out the meeting mechanism mentioned above so that it has legality in implementation to the community, especially performance for elementary and secondary education according to concurrent government affairs. Whatever the policies of the regional head or the Regional House of Representatives for the implementation of contemporary governmental affairs, which are orders of higher statutory regulations, do not conflict with the public interest and decency, go through a range of pre-planning procedures with Regional Regulations including Education affairs as a mandatory government affair.



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The Head of the Palu Regional House of Representatives Regional Session, Bayu Febrianto, stated that: "the planning process for the draft regional regulation regarding the Regional Medium-Term Development Plan has gone through the process according to the applicable mechanism." The regional regulation planning process is in accordance with the provisions of the applicable laws and regulations that the regional regulation concerning the Regional Medium-Term Development Plan was proposed by the Palu city government which is the elaboration of the vision and mission of the Mayor elected during the regional head election. And the deadline is no later than six months after the inauguration of the regional head.

### V. CONCLUSIONS

The potential for Islamic education places in Palu City is based on the number of mosques, with a total of 457 mosques, and there are still 185 mosques carrying out Islamic education, meaning that there are still 272 mosques that are not functioning as places for implementing Islamic education. While the total number of schools in the city of Palu available is 488, with details for the elementary school level totaling 190 and 145 in good condition. In contrast, 73 schools and 46 schools are in good shape for junior high school level. This means that 191 schools can be used, from elementary to junior high. Meanwhile, from the number of school-age children, both Early Childhood Education or Kindergarten, Elementary School, and Junior High School, there are 58,897 people consisting of ages 5 -9 years amounted to 28,431, and ages 10-14 years amounted to 30,466.

The *Palu Kana Mapande* Program is a program launched by the mayor of Palu with the addition of hours of learning and religious development (Islamic education) for fifth-grade students in 151 elementary schools throughout the city of Palu which was launched by the Mayor of Palu on December 21, 2016, at the Great Mosque of Darussalam which has now changed its name to Masjid Raya. Implementing the Student Creativity Program refers to the Decree of the Mayor of Palu number 420/56/DISDIK/2018 concerning additional hours of religious lessons for class V students in public and private elementary schools to form students with noble character and culture based on faith and piety. And the most important thing is that students must have scientific and technological skills but must be accompanied by faith and holiness.

### REFERENCES

- 1) Achdiyaradzan, Moh, Nurdin, Nurdin, & Alhabsyi, Firdiansyah. (2022). *Application of Extracurricular Activities in Shaping the Character of Students in Gontor Poso Modern Islamic Boarding School*. Paper presented at the Proceeding of International Conference on Islamic and Interdisciplinary Studies, Palu.
- 2) Alamsyah, Moh Ayuub, Pettalongi, Sagaf S, & Nurdin, Nurdin. (2023). *Peran Teknologi Pendidikan Dalam Meningkatkan Minat Belajar Siswa Di Era Society 5.0*. Paper presented at the Prosiding Kajian Islam dan Integrasi Ilmu di Era Society (KIIIES) 5.0, Palu.
- 3) Arif, Arifuddin M, Nurdin, Nurdin, & Elya, Elya. (2023). Character Education Management at Islamic Grassroot Education: The Integration of Local Social and Wisdom Values. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 7(2), 435-450.
- 4) Goldsmith, Michael. (2002). Central Control over Local Government - A Western European Comparison. *Local Government Studies*, 28(3), 91-112. doi:10.1080/714004150
- 5) Hupe, Peter, Hill, Michael, & Nangia, Monika. (2014). Studying implementation beyond deficit analysis: The top-down view reconsidered. *Public Policy and Administration*, 29(2), 145-163. doi:10.1177/0952076713517520
- 6) Jumahir, Jumahir, Nurdin, Nurdin, Pettalongi, Adawiyah, Fitri, Anindya, & Aftori, Rohmatika. (2023). Religious Culture Implementation in State Islamic Senior High School in Indonesia. *Research and Analysis Journal*, 6(2), 19-26.
- 7) Kloppenburg Jr., Jack. (1991). Social Theory and the De/Reconstruction of Agricultural Science: Local Knowledge for an Alternative Agriculture1. *Rural Sociology*, 56(4), 519-548. doi:https://doi.org/10.1111/j.1549-0831.1991.tb00445.x
- 8) McKernan, James A. (2013). The Origins of Critical Theory in Education: Fabian Socialism as Social Reconstructionism in Nineteenth-Century Britain. *British Journal of Educational Studies*, 61(4), 417-433. doi:10.1080/00071005.2013.824947
- 9) Muhaimin, Alif, Nurdin, Nurdin, & Alhabsyi, Firdiansyah. (2023). *Ilmu Pengetahuan dan Teknologi Menurut Pandangan Islam*. Paper presented at the Kajian Islam dan Integrasi Ilmu di Era Society (KIIIES) 5.0, Palu.
- 10) Nurdin, Nurdin. (2023). *Tantangan Guru Dimasa Industri 4.0: Pengetahuan dan Ketrampilan Baru*. Paper presented at the Kajian Islam dan Integrasi Ilmu di Era Society (KIIIES) 5.0, Palu.
- 11) Nurdin, Nurdin, Agam, Muhammad, & Adawiyah, Adawiyah. (2023). *Geographic Information System Continuance Adoption and Use to Determine Bidikmisi Scholarship Recipients Distribution*. Paper presented at the Proceedings of the 2022 International Conference on Computer, Control, Informatics and Its Applications, Virtual Event, Indonesia. <https://doi.org/10.1145/3575882.3575953>

## Reconstruction of Religious Education Policy through Regional Regulations of Palu City

- 12) Nurdin, Nurdin, Pettalongi, Sagaf S, Ahsan, Muhammad Nur, & Febrianti, Vindy. (2023). Factors affecting students' continuance intention to use teaching performance assessment application from technology continuance theory. *International Journal of Electrical and Computer Engineering (IJECE)*, 13(5), 5342-5353.
- 13) Nurdin, Nurdin, Scheepers, Helana, & Stockdale, Rosemary. (2022). A social system for sustainable local e-government. *Journal of Systems and Information Technology*, 24(1), 1-31. doi:10.1108/JSIT-10-2019-0214
- 14) Nurdin, Nurdin, Stockdale, Rosemary, & Scheepers, Helana. (2013). *The Use of Social Media to Gather Qualitative Data: A Case of Government E-Procurement Implementation and Use*. Paper presented at the 24th Australasian Conference on Information Systems (ACIS)
- 15) Nurfaiah, Nurfaiah, Nurdin, Nurdin, & Alhabsyi, Firdiansyah. (2022). *Management of Al-Qur'an Learning at One Day One Juz Palu Community*. Paper presented at the Proceeding of International Conference on Islamic and Interdisciplinary Studies, Palu.
- 16) Pratama, Muhammad Wahyudi, Pettalongi, Sagaf S, & Nurdin, Nurdin. (2022). *Integrated Curriculum in Pondok Pesantren with the Mu'allimin System (Study the Curriculum of Pondok Modern Ittihadul Ummah Gontor 11 Poso)*. Paper presented at the Proceeding of International Conference on Islamic and Interdisciplinary Studies, Palu.
- 17) Rahmawati, Rahmawati, Nurdin, Nurdin, & Pettalongi, Adawiyah. (2022). *Science Learning Methods in Kindergarten Schools (Study at: Khalifah Kindergarten in Palu City 2021)*. Paper presented at the Proceeding of International Conference on Islamic and Interdisciplinary Studies, Palu.
- 18) Roebben, Bert. (2012). Living and learning in the presence of the other: defining religious education inclusively. *International Journal of Inclusive Education*, 16(11), 1175-1187. doi:10.1080/13603116.2011.552648
- 19) Santoso, Fandi Nur Cahyo, Nurdin, Nurdin, & Pettalongi, Adawiyah. (2022). *Implications of the Implementation of Multicultural-Based Islamic Education in SMA Negeri 4 and SMKN 1 Poso*. Paper presented at the Proceeding of International Conference on Islamic and Interdisciplinary Studies, Palu.
- 20) Sidhu, Ravinder Kaur, & Taylor, Sandra. (2009). The trials and tribulations of partnerships in refugee settlement services in Australia. *Journal of Education Policy*, 24(6), 655-672. doi:10.1080/02680930802669326
- 21) Van Meter, Donald S., & Van Horn, Carl E. (1975). The Policy Implementation Process: A Conceptual Framework. *Administration & Society*, 6(4), 445-488. doi:10.1177/009539977500600404



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## The Relationship of Kidney Functions in Regulating the Level of Fluids and Salts for Patients and Conducting Some Biochemical and Hormonal Variables



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**ABSTRACT:** The study of paper is basic functions of the kidney in the body are many, the most important of which is what is represented in the role of the kidney and how to balance and maintain the normal proportions of fluids and salts necessary for the body and what this continuous effort of the kidneys is of utmost importance to maintain the normal pressure, so when the efficiency of the kidney decreases, it will need a higher pressure to subtract the amount of salts and water required Subtracting it, then, the blood pressure level changes to its normal level when the positive movement of the glomerular arteries changes. Renin is secreted by the kidneys and it has the main and effective role in maintaining normal blood pressure and its important role in most cases of high blood pressure, the resonance is secreted from specialized cells in the kidney as it leads to stimulation of the Angiotensinogen hormone that works to convert Angiotensin I to Angiotensin II and is the last of the strongest hormones It is effective in increasing the contraction of blood vessels and increasing its concentration in the blood above the normal level leads to high blood pressure because it has an effect on the contraction of the peripheral blood vessels, and the contraction of the blood vessels of the kidney reduces the process of reabsorption, which leads to the progression of hypertension. Also, the hormone angiotensin II stimulates the adrenal cortex to produce the hormone Aldosterone, which forms a fundamental role in the absorption of fluids and salts through the kidneys and are the three regulators (Resonance, angiotensin, aldosterone) The primary control for maintaining normal blood pressure

### INTRODUCTION

Potassium is found in the intracellular fluid (ICF), as the important ion in it is found in red blood cells at rates 25 times the level in the blood serum due to the lack of filtration through the cells (1). Potassium works to maintain the balance of water and electrolytes and the pH of body fluids and has an important role in the work of enzymes . Potassium is absorbed in the intestine and reabsorbed in the proximal convoluted tubule and some of it is excreted into the diuretic in the distal convoluted tubule, Acidoses Hyper kalamic metabolic.

An increase in the level of potassium occurs in patients with kidney failure when they develop oliguria, as the volume of urine reaches less than 250 ml per day, and this condition is difficult for patients with renal impairment (Za as well as the production of the hormone aldosteronism Hyper aldosteronism As for the lack of potassium Hypokalemia is It occurs as a result of heart failure and lack of food that contains it (2).

Potassium ions are the most lost ions, and its deficiency is related to high blood pressure, as many drugs used to treat blood pressure cause this deficiency, and osteoporosis (3) and its causes are: vomiting, diarrhea, burns, sweating. Taking diuretics, increasing aldosterone secretion, heart failure.

As for the increase in potassium, it is observed when the kidney function is disturbed, and its high is a strong indication for the initiation of the process of blood permeability in patients with chronic renal impairment and leads to changes in the ECG (4).

Most of the sodium is found in blood plasma, and there is little in red blood cells, which is the main ion in the extracellular fluid (EXF). It maintains the normal distribution of water in tissue cells and the level of osmotic pressure in the various liquid parts. Serum sodium concentration is regulated by the hormone Aldosterone. Adrenal cortex, which is excreted by the adrenal cortex, increases its absorption by the kidney tubules and reduces its sweat content. Increasing the sodium concentration in diuresis aids crystallization. When increased tubular sodium excretion results in a decrease in tubular re-absorption of calcium, the increase in sodium intake in foods increases calcium excretion according to its quantity in the diet (4). Sodium values decrease, or what is

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called hyponatremia, in many diseases, such as Addison disease, and in chronic cases of this disease, it is accompanied by loss of fluids outside the cells and leads to a loss of a large amount of salts, and in other cases where sodium values decrease, such as vomiting and diarrhea. And taking some medications that lead to increased sodium in the urine, either the case of hypernatremia in which sodium occurs when an imbalance in the amount of water to sodium results in thirst, dryness of the mucous membranes, and nervous irritability. Also, the sodium concentration increases in the case of heart failure when the heart is unable to divert blood from the venous side to the arterial side, which leads to poor blood flow to the kidneys and thus the sodium filtration decreases, and its concentration increases in kidney diseases in which a large amount of plasma protein is lost.

This hormone is made in the granular area of the adrenal gland, the Zone Granulosa, and falls into a specific class of hormones called the mineralocorticoid. It helps maintain blood pressure and the balance of water and salts in the body by helping the kidneys to retain sodium and potassium (5).

When aldosterone is low, the kidneys are unable to regulate the salt and water balance, causing an imbalance in the blood, blood pressure and volume to decrease (6). Its physiological role is to preserve sodium ions in exchange for the excretion of potassium and hydrogen ions from the distal tubes in the kidney and the mechanism for secretion of the hormone aldosterone is complex but depends (7): (Angiotensin-Renin) mainly on the renin-angiotensin system and the adrenal stimulating hormones Adrenocorticotropic Hormone (ACTH).

The level of sodium and potassium ion in the blood plays an important role in that excretion. Cases of high aldosterone level occur naturally. Especially in cases where sodium intake is reduced with adequate potassium intake, after heavy sweating, and in pregnancy in the last three months of it, and cases of low levels of the hormone aldosterone naturally appear after lack of potassium in food and after drinking lots of fluids and water.

### MATERIALS AND WORKING METHODS

After collecting the study samples (50 samples) from the patients, the serum was obtained by placing a few milliliters of the previously drawn blood in a plastic tube with an airtight cover and free of anticoagulation, where it was placed in a centrifuge for 15 minutes at a speed of 3000 rpm and the serum was withdrawn (Filtrate) with a micropipet and kept at freezing (-20 ° C) until the analysis of the chemical and hormonal tests.

### DETERMINATION OF THE LEVEL OF POTASSIUM ION IN THE BLOOD SERUM:

#### The basic principle:

The potassium ion was measured in serum according to the method mentioned in the kit supplied by the French company Biomerieux, bearing the number 1011801 (8).

#### solution used

Reagent(1)	precipitant (white cap)	50
ml-:*		
PREC	Trichloro acetic acid (TCA)	
0.3 mmol/l		
* Reagent(2)	TPB- Na-Reagent( black cap )	
50 ml		
TPB	Sodium tetrapheyl boron	
0.2 mmol/l		
	NaoH Reagent(Red cap )	50 ml (3) Reagent*
NaOH	sodium hydrolide	2.0mmol/l
*STD	standard potassium	5.0 mmol/l
	(k+)	

#### Procedure

	Semi_micro	Macro
Specimen	100ml	50 ml
PREC	1000ml	500 ml

Pipette in to centrifuge tubes :-

The tubes were carefully and carefully mixed and placed in a centrifuge at a speed of 3000 rpm for a period of (5-10) minutes, after which the tubes were removed from the centrifuge and other additions were made as follows:

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Pipette into cuvettes

	STD	Sample	STD	Sample
Working reagent	2000ml	2000ml	1000ml	1000ml
STD	200ml	/	100 ml	/
Supernatant	/	200ml	/	100ml

The tubes were left to maintain a little stability after mixing them, then they were left for 30 minutes at a temperature of (25-20) C and I read their absorption on a spectrophotometer at a wavelength of 578 nanometers. I read the first reading and after 5 minutes I read the second reading and it is calculated as in the following equation:

Second reading - first reading = reading the pattern

Potassium concentration = Second reading \* 5  
m mol/l          Read Standard

### Determination of the sodium ion level in blood serum:

#### The basic principle:

The sodium ion concentration of the serum was measured using the standard method and as shown in the kit supplied by the French company Biomerieux, bearing the number 57335101 (9).

Solution's used

*Reagent(1)	Precipitating solution	60 ml
PREC	Uranylacetate	19mmol/l
	Magnesium acetate	140 mmol/l
Reagent(2)	Colour reagent	60 ml*
RGT	Ammonium thioglycolate	550 mmol/l
	Ammonia	550mmol/l
*Reagent(3)	Standard of	150 mmol/l
STD	Sodium(Na <sup>+</sup> )	

RB_reagent	Blank	STD:standard	RB ml	STD ml	Sample ml	RB ml	STD ml	Sample ml
STD	/	/	50	/	/	20	/	/
Serum	/	/	50	/	/	20	/	20
PREC	/	/	3000	3000	/	1000	1000	1000

The tubes were closed, mixed well and placed in a centerfuge centrifuge at a speed of 3000 rpm for a period of (5-10) minutes, after which the following was done: -

	Blank	STD ML	Sample ml	Blank ml	STD ml	Sample ml
PREG	50	/	/	20	/	/
Clear Shpernatant	/	50	50	/	20	20
RGT	3000	3000	3000	1000	1000	1000

The tubes were mixed well and left for 30 minutes at a temperature of (20-25) 0 C and their absorption was calculated on a Spectrophotometer at a wavelength of 410 nm. The first reading was read and after 5 minutes the second reading was read and was calculated according to the following equation: -

Sample reading = first reading - second reading

Sodium concentration = Sample reading \* 150  
m mol/l          Read Standard

### Determination of serum aldosterone level:

#### The basic principle:

Aldosterone was measured using the standard method and as shown in the measuring kit provided by the German company Human, which carries the number 1664 (10).

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## Reagents provided

anti\_aldosterone antibody\_ coated tubes 2 x 50 tubes.1-

/-/ 1252-labeled aldosterone tracer: one 55 ml vial

3-calibrators: six vials

Control serum: one vial4-

Steps	Calibrators and control	Serums	Tubes for total count
Additions To antibody_ coated tubes, add successively			
Calibrators or control	50 ml	/	/
Serum samples	/	50 ml	/
Tracer	500ml	500 ml	500 ml

The tubes were mixed well for three hours at a temperature between 18-25 C and inserted into the (ELISA) device and read according to the following equation:

$$\text{Cross\_ reactivity (y) = Aldosterone concentration} \times 100 \text{ at } 50 \text{ y .}$$

binding of the zero calibrator                      Steroid concentration

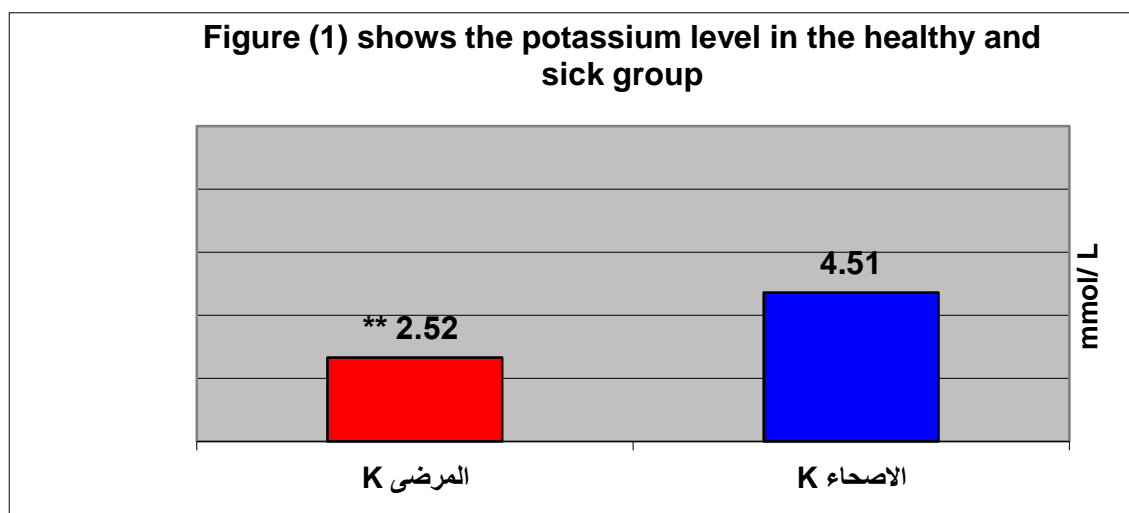
Pg/ml

## RESULTS AND DISCUSSION

### The concentration of potassium in the blood serum

Figure (1) showed that there were high significant differences in the potassium level between the healthy group and the patient group at the level (P <0.05). We find that the average potassium level in the healthy group was  $4.51 \pm 0.21$  mmol / L compared to the patient group as it was  $2.58 \pm 0.08$  mmol / L.

Among the tests is a test of the level of potassium in the blood. The results of a decrease in the level of potassium have appeared as a result of the disease, and this causes hormonal effects on potassium as well as a defect in the work of glomerular filtration in the kidney as it works to excrete large quantities of potassium and its excretion with the urine and the lack of potassium is due to physiological disorders It results in increased potassium as a result of adrenaline released by disease, which leads to release of the released potassium into the plasma (11).



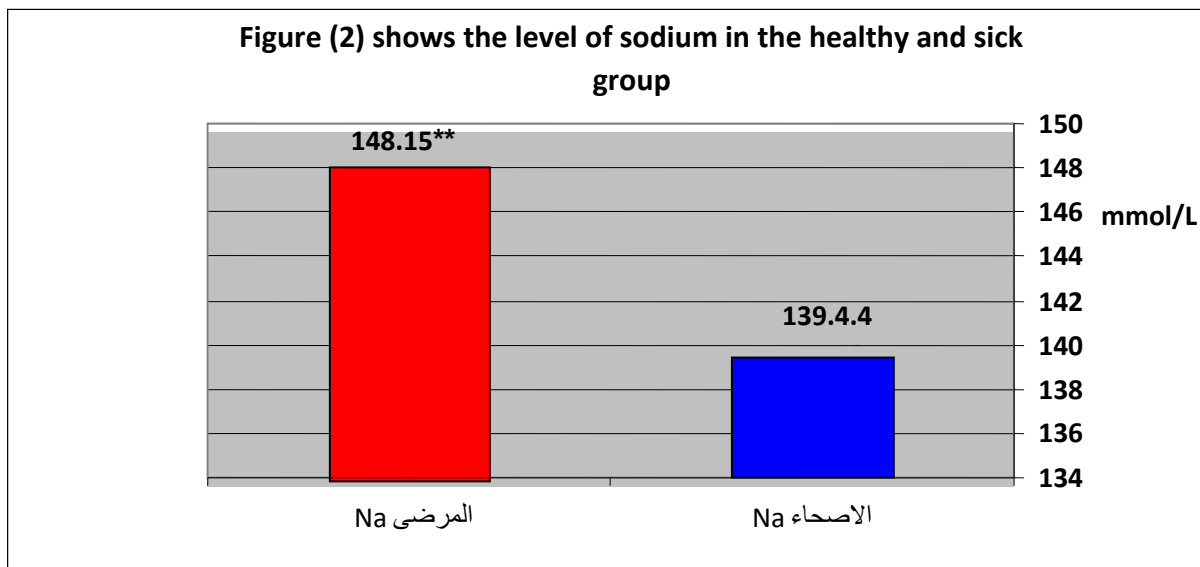
The sign (\*) indicates the existence of significant differences at (P <0.05) level.

### Sodium concentration in blood serum

The results in Fig. (2) indicate that there are significant differences in the sodium level at (P <0.05) between the healthy group and the patient group. The average sodium level in the healthy group had reached  $139.40 \pm 1.4$  mmol / L Compared to the patient group, it was  $148.15 \pm 1.0$  mmol / L. As there is a significant increase in the level of sodium, as the level of potassium was low in patients, while the level of sodium increased due to the retention of the amount of sodium in the body.

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To compensate for the lost potassium, as there is a correlation between the level of potassium and sodium in order to regulate body fluids. (12).

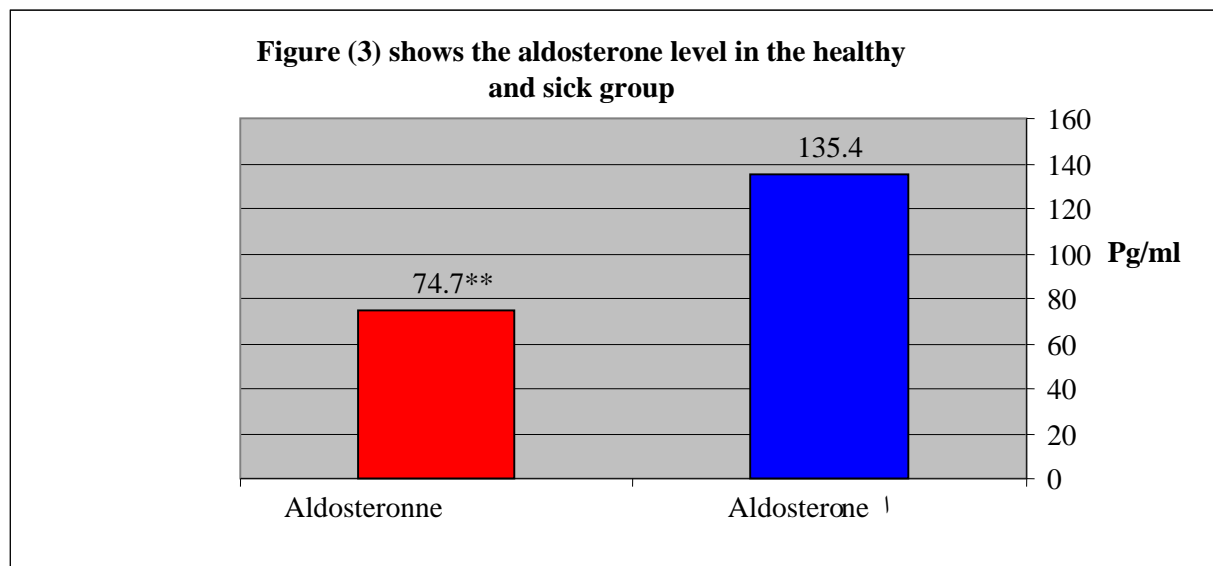


The sign (\*) indicates the existence of significant differences at (P < 0.05) level.

### Serum aldosterone level

Figure (3) shows that there are significant differences between the healthy and the patient group in the concentration of aldosterone in the blood at (P < 0.05). The aldosterone concentration was in the blood of the healthy group pg / ml  $135.4 \pm 12$  Comparison with the patient group rate pg / ml  $74.7 \pm 7.1$ .

The reason for a significant decrease in aldosterone ( $p > 0.05$ ) This is due to the negative feedback state, which occurred due to the depletion of more potassium ions through the distal convoluted tubules, the site of action of the hormone, and accordingly the picture of the presence of this hormone or its secretion was reversed to a lower extent in the normal state for non-patients (12).



The sign (\*) indicates the existence of significant differences at (P < 0.05) level.

### Statistical Analysis

The results were analyzed statistically using (13) program and according to the F-test. Arithmetic averages of the coefficients were tested using the Duncun Multiple Range Test with a significant level (P < 0.05) to determine the significant significant differences between the groups.

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### REFERENCES

- 1) C.R. Dequet and D.J. Wallace, *Current Opin Ivest Drugs*, (2001) 8: 1045-53.
- 2) Elsheikh A., Cretsas G, Mastorakos G , Miligos , Loutradis D, Michalas S,(2001). The rennin aldosterone system during normal and hypertensive pregnancy .*Arch Gynecology obstetric* ,264 (4) :182-5.
- 3) Guyton,A.C. and Hall,J.E.(2006).*Text Book of Medical Physiology* 11<sup>th</sup> ed.ISBN.U.S.A. 50-65.
- 4) Haslett,C.; Chilvers, E.R.;Boon,N.A.;Colledge,N.R.and Hunter J.A.A.(2002). *Davidsons Principles and Practice of Medicine* 19<sup>th</sup> ed.Churchill Livingstone Edinburgh,963.1002-7.
- 5) Henry R.J.(1974). *Clinical Chemistry*. sec Edit. Harper and Row, New york, 643.
- 6) Kaja RJ.and Greer LA. (2005).Manifestations of chronic disease during pregnancy . *JAMA* ;294(21)PP:2551-7.
- 7) New, S.A.;Robins,S.P;Campbell,M.K.;Martin,J.C.;Garton,M.J. and Bolton-Smith, C. (2000).Dietary influences on bone mass and bone metabolism: Futher evidence of appositive lin; between fruit and vegetable consumption and bone health. *Am.J. Clin.Nutr.*;71(1):142-151.
- 8) Raisz,LG.;Mcneely,WF.;Saxon,L.and Rosenbaum,GD.(2007).The effects of cortisone hydrocortisone on water diuresis and renal function in man . *J. clin. Invest.* jun;36(6pt) : 767 – 779 .
- 9) Rodman,JS.( 2002). Intermittent versus continuous alkaline therapy for uric acid stones and uretal stones of uncertain composition.*Urology* 60:378-382.
- 10) Shaun R.(2003).Introduction to the rhaumated disease in:David.Dah Daniel .Federman *Scientific American Medicine*.WebMD.Ine new york.111:pps.1282-1287.
- 11) Tietz ,N.W.(2006).*Fundamentals of Clinical Chemistry*. 4<sup>th</sup> ed. Saunders, Philadelphia it 984.
- 12) Tucher,K.L.:Chen,H.;Hannan,M.T.;Cupples,L.A;Willson,P; Felson, D.and Kile,D.P.(2002).Bone mineral density and dietary patterns in older adults: The Frammingham osteoporosis study.*Am.J.Nutre*;76(1):245-252.
- 13) Vander, Sherman,Widmaier,Lucianos,Eric,Kevint Strang& Hershel Raff.,(2004).*Human physiology the mechanism of body fuction* , (9<sup>th</sup>)Ed.,published by McGraw -Hill companies NewYork,p .442 .



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## Improving Students' Interest in Learning and Language Literacy through Creating Reading Corners for Fifth Grade Students at GMIT Fatumnasi Elementary School



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**ABSTRACT:** This study discusses the efforts of teachers in managing reading corners for students fostering interest in reading for fifth grade students at GMIT Fatumnasi Elementary School. This study uses a qualitative research design, namely where the researcher plays a direct role as planner, implementation, data collection, analyzing data and at the same time reporting data. Data collection is done by observation, direct interview techniques and documentation. Researchers found that the teacher's efforts in utilizing reading corners to foster interest read students namely, (1). Encourage children to tell about what happened he read, (2). Exchange books with friends, (3). Provide interesting books read students, (4). Provide reading time, and (5). Give gifts. The obstacle in fostering students' interest in reading is the minimum classrooms, lack of variety of books or limited books and there are students who don't like to read. As for overcoming these obstacles is to make neat and beautiful reading corner decoration, suggesting that the school raise it library budget, and provide motivation and support. Results of research this means that the existence of a reading corner makes students feel happy and more active in reading.

**KEYWORDS:** Interest in Learning, Literacy, Reading Corner

### INTRODUCTION

Education is a very important need in human life, because through education it is able to form dignified character and civilization in order to educate the life of the nation. In the Law on the National Education System (Sisdiknas) No. 20 of 2003 Article 4 paragraphs 3 to 5 states that education is organized as a process of cultivating and empowering students that lasts a lifetime. Education is organized by setting an example, building will, and developing students' creativity in the learning process.

Education is organized by developing a culture of reading, writing and arithmetic for all members of society. Based on this Law, the government developed a reading culture by issuing Minister of Education and Culture Regulation (Permendikbud) Number 23 of 2015 concerning the Growth of Noble Characteristics to students by developing the School Literacy Movement (GLS).

The results of a survey in early 2000 conducted by the IEA (International Education Achievement) showed that Indonesian children's reading quality was ranked 29th out of 31 countries studied in Asia, Africa, Europe and America (Rohman, 2017). So it is not surprising that the quality index of Indonesia's human resources is still below that of other neighboring countries such as Malaysia, Singapore or Thailand.

Based on the 2009 PISA results it was stated that Indonesian students were ranked 57th with a score of 396 where the OECD average score was 493, while the 2012 PISA results showed that Indonesian students were ranked 64th with a score of 396 where the OECD average score was 496 with a total 65 countries participated in the 2009 and 2012 Pisa (Hidayah, 2017). Based on these data it can be stated that the practice of implementing education held in Indonesia has not shown that the school functions as a learning organization that strives to realize the goal that all school members are skilled at reading to support them to become lifelong learners.

By looking at these conditions, the Ministry of Education and Culture developed a reading movement within the School Literacy Movement (GLS) which involved all stakeholders in the education sector. The GLS, which was established through Ministerial Regulation Number 23 of 2013, aims to assist students in improving the culture of reading and writing in the school environment and outside of school.

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The School Literacy Movement (GLS) is an effort that is carried out in a comprehensive and sustainable manner to turn schools into learning organizations that have lifelong literate citizens by involving the community (Sadli & Saadati, 2019). One of the goals of the school literacy movement is to increase student awareness that reading is very important and to bring broader insights (Dharma, 2013).

According to Rumengan & Talakua (2020), "students' interest in learning is different from one another". Interest in learning can be influenced by many factors including the use of gadgets (Musariffah, 2018). It can be concluded that interest is that people will try to achieve goals (Achru 2019). So from the understanding above, one of the drivers for successful learning is interest in learning, especially high learning interest. Interest in learning does not appear alone, but there are many factors that can influence the emergence of interest in learning, and there are several factors that can influence student interest in learning, including: interest in learning can be obtained through learning, learning materials and attitudes of teachers, family, social friends, environment, ideals, mass media and facilities.

Interest in learning is a change in overall behavior, not just one aspect of human potential. Dimiyati and Mudjiono (2006) define interest in learning as a result of the interaction between learning and teaching. From the teacher's point of view, teaching activities end with the process of evaluating learning outcomes. From the student's point of view, learning interest is the end of learning and the peak of learning. Interest in learning is influenced by several internal and external factors.

Based on observations made at GMIT Fatumnasi Elementary School, the academic quality of Grade V GMIT Fatumnasi Elementary students is categorized as standard, including their literacy skills. Meanwhile, the problem most often encountered is student absenteeism. Often students skip classes and don't even attend from the first lesson to the last lesson. In fact, according to parents, students often say goodbye to go to school but in reality they don't go to school, but instead play with their friends outside the school environment. Parents are also less aware of their role in accompanying students to study at home so students' homework is often not completed due to lack of parental monitoring. The teachers have made every effort possible, starting from providing motivation, holding meetings with parents, to making visits to students' homes to overcome this problem. Even so, there have been no significant changes as expected.

GMIT Fatumnasi Elementary School is one of the basic education institutions in the Fatumnasi village area, North Mollo District, South Central Timor Regency. SD GMIT Fatumnasi has 6 study groups, 3 civil servant teachers, 6 honorary teachers, and 70 students. As a basic educational institution, GMIT Fatumnasi Elementary School has a big role in preparing the next generation of Fatumnasi village people for developing the human resource potential of this village. Since its establishment in

This condition is a problem that needs to be studied from various aspects in order to find the right solution. Considering that SD GMIT Fatumnasi is one of the basic educational institutions that has an important role in shaping the next generation of the people of Fatumnasi Village, a special approach is needed to reduce student absenteeism.

Based on the description above, efforts have emerged to increase students' interest in learning and language literacy through creating reading corners for fifth grade students at SD GMIT Fatumnasi. Therefore, this study aims to find out how to increase students' interest in learning and language literacy through creating reading corners for SD GMIT Fatumnasi.

### **THEORITICAL REVIEW**

#### **Interest to learn**

In the learning process, interest in learning is a crucial aspect that needs to be considered by the teacher as an educator. According to Syardiansah (2016), the achievement of student learning outcomes is influenced by the learning activities carried out by students because of the encouragement of interest that arises from the needs and desires of students. Meanwhile, Lakapu (2020) added that the high or lack of motivation possessed by each student greatly influences the achievement of learning outcomes. Students who have high motivation will feel compelled to learn, while students who are less motivated in learning will affect the learning process and experience obstacles in improving their learning outcomes. This is why it is important for a teacher to carry out an analysis of student needs before carrying out learning.

Interest has an important role in one's life. Interests greatly affect the activities, attitudes, behavior and actions of a person. Interest is an interest in something. According to the Big Indonesian Dictionary, interest is "a high inclination of the heart towards something, lust and desire". Interest is a desire that comes from the heart itself. In addition, Sardiman (2016: 76) states that "interest is defined as a situation that occurs when a person perceives temporary characteristics or meaning in a situation related to his own desires or needs". The level of a person's interest affects his behavior. The indicator of interest in learning is a measurement reference for finding out students' interest in learning (Slameto 2017). There are several elements indicating the interest in learning that students have in the learning process both within the scope of the school and within the scope of the

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family. Indicators of student interest are as follows: liking and interest in the things studied, student desire to learn, attention to learning, enthusiasm and student participation and activeness in learning.

The next opinion, namely, regarding indicators that can be used to measure student interest according to Komariyah et al (2018: 3) mentions the fact that student achievement will be better if they have a great interest in the lessons being taught. If the educational problem is that students do not learn enough, this condition hinders the achievement of learning objectives, namely the achievement of cognitive, affective and psychomotor changes. Because interest is related to learning, teachers should pay more attention to student learning interests.

To achieve a good learning process, various strategies are needed from educators, these strategies include, for example, the use of learning models and methods determined by the class teacher or subject teacher (Djara, et al, 2023). Someone who has an interest in learning can be seen from the enthusiasm he has in participating in learning. One's interest in learning is not always stable, but always changing. Therefore, it must be directed and developed towards a choice that is determined by the factors that influence that interest. According to Mashudi & Baskorowati (2015: 85-86), describing a person's interests is influenced by the following: Factors from within, needs related to the body and psychology, factors of social motives. The emergence of interest in a person is driven by social motives, namely the need to get recognition and appreciation from the environment where a person is in emotional factors. This factor measures the intensity of a person's attention to the lesson, so that he is more motivated to actively live and learn it.

Based on the definition of interest in learning, it can be said that interest in learning is the human level of students in accepting, rejecting and evaluating information in the teaching and learning process. We can know the interest in student learning after an evaluation is held. One form of interest in learning that is sought to be achieved through the field of education is the level of student learning.

Achru P (2019) states that interest is formed from various elements including feelings, pleasure, heart tendencies, and an involuntary desire that is active in nature to receive something from the outside (environment). Interest gives a stimulus to someone to try to achieve their goals so that they are categorized as one of the human psychological aspects that can encourage them to achieve goals. Thus, interest in learning is formed from pleasant conditions so that students are aware of their needs and desires for the learning process, without coercion or feelings of pressure. By considering the aspects of forming interest in learning, the teacher needs to create a pleasant learning situation and environment so that student interest can be formed.

There are three things according to W. Olson (in Syardiansah 2016) that can foster and increase interest in learning, namely:

1. Changes in environment, contacts, reading, hobbies and sports, going on holiday to different locations. Going to meetings attended by people you have to know, reading unread articles and bringing up a wide variety of hobbies and sports will all make it more interesting.
2. Simple exercises and practices by thinking of solutions to specific problems so that you become more interested in solving specific problems.
3. Making other people develop themselves more, which is essentially self-development.

### **Language Literacy**

Literacy is defined as literacy, the ability to understand text, the ability to read and write, and the ability to understand language symbols used by humans in communicating (Untari, 2017, Mardiyah 2019, and Wulandari 2021). Over time, the definition of literacy has developed and not only covers the field of language, but includes various fields as mentioned by Suragangga (2017), namely early, basic, library, media, technology, and visual literacy.

“Early literacy is listening competence by understanding the use of spoken language in their environment. Basic literacy includes Indonesian language competence (listening, reading, speaking and writing), arithmetic, and critical thinking. Library literacy is the activity of distinguishing reading books from fiction and non-fiction genres to having cognitive insight in knowing the correct information in completing a written work or research. Media literacy is knowing the different forms of media and understanding the intent of their use. Technological literacy is the ability to understand technological components and their use. Visual literacy is an advanced level of media literacy and technology literacy by developing visual and audiovisual learning abilities. (Yuliana, Wikanengsih, and Kartiwi, 2020. P. 244)”

Literacy is the ability to access, understand and use something appropriately through reading, writing, listening or speaking activities (Budiharto, Triyono, & Suparman, 2018). Another opinion states that Literacy is a skill related to reading, writing, and thinking activities that focuses on increasing the ability to understand information critically, creatively and innovatively (Suyono, Harsiati, & Wulandari, 2017). Literacy is not just reading and writing but includes critical thinking skills utilizing knowledge sources in the form of print, visual and digital.

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One of the programs run by the government is the School Literacy Movement (GLS) which aims to improve students' literacy skills which are integrated with the learning curriculum (Mutia, Atmazaki, & Nursaid, 2018). The government's effort to improve literacy skills is by issuing the Minister of Education and Culture Regulation Number 23 of 2015 concerning the Growth of Character and Character. According to the Ministry of Education and Culture's School Literacy Movement Task Force (2020), through the Indonesian National Assessment Program (INAP) or Indonesian Student Competency Assessment (AKSI) program in 2016, the Ministry of Education and Culture Puspendik tested reading, mathematics and science skills for grade IV elementary school students and the results showed that In the field of reading, 46.83% of students in Indonesia are in the less category, 47.11% are in the sufficient category, and only 6.06% are in the good category. This proves that students in Indonesia still have low literacy skills. Therefore, the government has launched the School Literacy Movement program since March 2016 to improve these conditions. As a government program that has a school ecosystem target at the primary and secondary education levels, the School Literacy Movement refers to the 4 Nawacita of the Ministry of Education and Culture, namely improving the quality of life of humans and Indonesian society; increasing people's productivity and competitiveness in the international market so that the Indonesian nation can progress and rise together with other Asian nations; to revolutionize the national character; and strengthening diversity and strengthening Indonesia's social restoration. Thus, the goals of the School Literacy Movement include:

1. Making the school a literacy-cultured learning organization.
2. Form literate school citizens in terms of:
  - a) read and write,
  - b) numeration,
  - c) science
  - d) digital
  - e) financial
  - f) culture and citizenship

### **Reading Corner**

A reading corner is a place located in a corner of a room equipped with a collection of books (Safaat 2019). The purpose of establishing a reading corner is to bring the library closer to readers so that readers have higher reading habits and frequency because reading sources are closer to the reader's location. The role of the reading corner is mentioned by Maulida (in Safaat 2019), among others:

1. Media or a bridge that connects sources of information and knowledge contained in the library collection.
2. An institution to build interest in reading, a passion for reading, reading habits and a reading culture through the provision of various reading materials in accordance with the wishes and needs of the community.
3. Facilitator, mediator, motivator for people who want to find, utilize, develop their knowledge and experience.
4. Agents of change, agents of development and agents of human culture.
5. Non-formal educational institutions for community members. Enabling people to learn independently, conduct research, explore and utilize information and knowledge.

The Ministry of Education and Culture of the Republic of Indonesia (2016) states that one of the purposes of reading corners is to foster public interest in reading. Thus, the reading corner can be used as a stimulus for elementary school students to be more active in reading, thereby indirectly encouraging their interest in learning. The Ministry of Education and Culture (2016) also added the stages of creating a reading corner, including:

- a. Provide a portion of the area to store a collection of library materials;
- b. Designing a placement plan by taking into account lighting, air circulation, safety and comfort of employees and visitors;
- c. Designing a library material collection arrangement model by providing sufficient, strong, and safe collection places or shelves and determining, sorting, and providing the types of library material collections to be placed in the reading corner of the room;
- d. Completing the collection of library materials in the reading corner of the room;
- e. Organize collections of library materials on the space or shelves provided and prepare reading recap books;
- f. The room's reading corner collection should always be updated to maintain employee and visitor reading interest at least once a month. Several studies have proven that reading corners have been quite successful in supporting the school literacy movement program launched by the government. Maytawati (2019) states that reading corners effectively meet students' information needs. In line with this, Ramandanu (2019) added that reading corners can foster students' interest in reading.

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## METHOD

This type of research is qualitative research using a qualitative descriptive approach. Descriptive research is a research method that seeks to describe the object or subject under study as it is, with the aim of systematically describing the facts and characteristics of the object under study accurately.

Setting This research was conducted at SD GMIT Fatumnasi. The reason the researcher chose is because the researcher works at GMIT Fatumnasi Elementary School and there is already a reading corner, especially in class V.

The data collection was carried out in several ways, including:

### 1. Interviews

The interview technique according to Mardalis is an oral question and answer process between two or more people facing each other physically, one can see the other's face and listen.

### 2. Observation (observation)

Observation is data collection that is done by looking directly at the object to see closely the activities carried out by the object. Observation activities include observing and systematically recording events, actors, as well as objects seen and other things needed in the research being carried out.

### 3. Documentation

Documentation is intended to obtain data directly from the research site, including relevant books, regulations, reports, activities, and other matters relevant to the experiment.

Techniques that are usually used by researchers to collect data are in-depth interviews, observation, and document collection (Afrizal, 2017)

1) Interview, which is a way of collecting data or information by directly meeting face to face with the informant, with the intention of getting a complete picture of the topic under study

2) Observation researchers to find out something that is happening or that is being done feel the need to see for themselves, listen to themselves or feel for themselves.

3) Documentation, researchers collect written materials such as news in the media, meeting minutes, correspondence and reports to find the necessary information. In this study, using qualitative research techniques. The data that has been collected either through in-depth interviews, observation or recording of documents is collected and analyzed by making interpretations. The process of data analysis in this study or in using qualitative methods is carried out at the same time as the data collection process takes place.

Meanwhile, according to (Huberman & Miles, 1992:2) data analysis can be carried out in three ways, namely:

### 1. Data Presentation

Qualitative research data, where the presentation of data is done in the form of brief descriptions, charts, which is most often used to present data in qualitative research is narrative text.

### 2. Data reduction

Data reduction is a process of focusing selection, simplification of rough data that emerges from written notes in the field that organize data in such a way. Reducing data by summarizing, choosing the main things, focusing on the things that are important and removing things that are considered less important.

### 3. Conclusion Drawing

Conclusion drawing is an activity that is fully configured. The conclusions were also verified during the research. The verification may be as brief as the researcher's rethinking during writing, a review of field notes.

## RESULTS AND DISCUSSION

This research was conducted at SD GMIT Fatumnasi in class V in the even semester of the 2022/2023 school year. SD GMIT Fatumnasi is one of the schools that is included in the South Central Timor region. Adequate facilities and infrastructure with a balanced number of students and teachers. There are more female students in this school than male students, as well as more honorary teachers in each class compared to PNS teachers. This reading corner is a form of effort made by the school to increase students' interest in reading at GMIT Fatumnasi Elementary School. With this reading corner it will be easier for teachers and students to carry out learning and students can use the reading corner during their free time to read without having to find it difficult to get books because SD GMIT Fatumnasi does not yet have an adequate library.

This research was conducted for 3 days, namely on March 29-31 2023, then it was stopped due to Ramadan and Eid al-Fitr holidays, then resumed on May 18-20 2023. Researchers interviewed 2 teachers who teach in class V (Indonesian teacher and religious teachers), as well as the homeroom teacher for class V. Then the researcher distributed a questionnaire to 30

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respondents. Next, to strengthen the results of the interviews, the researcher also made observations of teachers and students during the learning process in using the reading corner and observing the state of the reading corner in the class.

### **DISCUSSION**

#### **1. Creating a Reading Corner at SD GMIT Fatumnasi**

The creation of a reading corner at GMIT Fatumnasi Elementary School is already underway, although the books provided are still not sufficient, improvements in quality and utilization are ongoing. This can be seen from the results of interviews conducted by researchers. Before the lesson begins, the teacher holds reading activities for approximately 15 minutes at the beginning of learning every day, this activity is carried out before learning begins. The students enter the class and read a prayer together, and then read together for 15 minutes. After that, the lesson begins. At the beginning of this activity many students were still lazy and not interested in reading, because they were still used to playing with their friends until the bell rang before learning started. It takes quite a long time for students to get used to this activity. The existing reading corner aims to trigger students' liking and interest in reading books. With this liking students will visit the reading corner more often to increase reading interest. This is in accordance with Morrow's expression which says that: the purpose of the reading corner is to make it easier for students to find information and foster interest in reading in students (Morrow, 2014).

#### **2. Utilization of Reading Corners to Increase Language Literacy and Interest in Learning in Children**

The emergence of interest in an object is characterized by a sense of pleasure or interest. Interest is not only expressed through statements indicating that someone prefers something over another, but can also be implemented through active participation in an activity. Like the one at SD GMIT Fatumnasi. In reading activities, the researcher saw that the students' interest was very enthusiastic and happy in reading in the reading corner. During the learning process the teacher gives encouragement to students to increase interest in reading. One of them is by visiting the reading corner to read or borrow the book you like. In the end, slowly the students liked reading activities through this reading corner. Students' interest in reading is indicated by their activeness in visiting the reading corner to read and borrowing books in the reading corner. This means that students have used the reading corner facility.

The above is in accordance with the theory which argues that interest is an encouragement to understand word for word and the content contained in the reading text, so that the reader can understand the things set forth in the reading. Tampubolon in Dalman (2013) explains that reading interest is a person's willingness or desire to recognize letters to capture the meaning of the writing.

Prasetyono adds curiosity to the attention (attention) to an object that can generate a sense of interest or interest in something (interest). Interest will cause stimulation or desire (desire) to do something (read). A high desire in a child will generate a passion to continue reading to meet needs (action), so that children always try to get reading to meet their needs. The implementation of the use of reading corners in increasing students' interest in reading at SD GMIT Fatumnasi is carried out in several ways including:

- a) The preparation of the book must be neat and attractive.
- b) There are story or non-fiction reading books.
- c) Spatial arrangement must be appropriate.
- d) Motivation and encouragement by teachers to students to always read

After several ways that have been done by the teacher, this method has been applied by the teacher so that it can foster students' interest in reading, with this method there is a change in students who previously wanted to visit the reading corner only because it was assigned by the teacher, but with this method students have a willingness visit the reading corner to add insight by reading, and look for books in doing assignments. There are several ways teachers can help students to take advantage of classroom reading corners, including:

- a) Create and agree on rules for using/reading a collection of books in a corner read class.
- b) Developing text-rich materials, in the form of deep student work classroom learning, school programs, and display them.
- c) Invite students to choose books to read independently or read aloud by the teacher in the 15-minute reading activity before learning begins.

Given that reading is the basis for someone to gain knowledge, skills, and attitude formation. So get used to reading 15 minutes is an important step to foster a habit or culture of reading students. Such that applied to SD GMIT Fatumnasi.

The reason for this activity is to instill the habit of reading books in students, because currently Indonesia is one of the countries with low interest in reading. In utilizing reading corners to increase students' interest in reading, there are several factors that

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hinder the use of reading corners including the lack of space to create more reading corners in each class and the few types of books provided. This is very unfortunate, with the lack of types of books available, students will quickly get bored with books that are just that.

### **3. Efforts of Class V Teachers in Utilizing Reading Corners to Grow Students' Interest in Learning and Language Literacy**

The reading corner is a room located in the corner of the classroom which is equipped with a collection of books and serves as an extension of the function of the library. Through reading corners, students are trained to get used to reading books, so that students like to read. The reading corner is designed with an attractive appearance so that students are more interested in reading the book (Kemendikbud, 2016: 13). Having a reading corner makes it easier for students to read the books they want without having to visit the library first.

The teacher's efforts in utilizing the reading corner in class V of SD GMIT Fatumnasi obtained quite satisfactory results. Students become more fond of reading, students will also read books without being asked by the teacher or read only when there is an assignment. The many efforts that have been made by the teacher produce results in the process of fostering students' interest in reading. After conducting the research, the researcher found findings about how the teacher's efforts used the reading corner to foster students' interest in reading in class V SD GMIT Fatumnasi. So there are some research findings, namely as follows:

#### a) Encourage children to tell about what they have read

The teacher's efforts to foster students' reading interest in various ways have been carried out, including encouraging children to retell the contents of the reading they have read. To see how far the child's understanding of the knowledge that has been read. Students really need encouragement in the form of support and direction from the teacher to be more fond of reading, reading books, not just reading them and then closing them. So in fostering interest in reading the teacher does not only ask students to read the book and then close it again, but students must be brave to retell the contents of the book they have read. That way students will be serious in reading and remember what they have read.

#### b) Exchange books with friends

One of the efforts to foster students' interest in reading is by exchanging the books they have read with the books of friends and relatives. Based on the results of observations that have been made, students' interest in reading grows after exchanging books with their themes. This is because students are more likely to read the books they want and students are richer in knowledge

#### c) Provide books that interest students in reading

Basically elementary school level students are still in the easily bored phase, so students need lots of different reference books to read. Not only story books but also must contain learning books

#### d) Provide reading time

A sign that students' interest in reading has grown is to see that students read without being asked, and students take the time to read in their free time. As the author obtained during his research at GMIT Fatumnasi Elementary School, the researcher concluded that there were students who were reading during free hours or during recess. Therefore, the teacher's efforts to foster students' interest in reading by utilizing reading corners can be carried out by students

#### e) Giving Gifts

Giving gifts or rewards as a sign of appreciation for achievements that have been owned is a special joy for students. in reading books.

### **4. Obstacles in Growing Interest in Reading by Utilizing Reading Corners at SD GMIT Fatumnasi**

#### a) The lack of classrooms

The lack of classrooms is one of the obstacles in using the reading corner at GMIT Fatumnasi Elementary School. Because it is better if in spatial planning you have to design a placement plan by paying attention to lighting, air circulation, safety and student comfort.

#### b) Lack of variety of books or limited books

Lack of interest in reading in children can also be due to the absence or lack of facilities for these activities. At home parents may not provide quality reading books so that children are not introduced to reading activities.

#### c) Students who do not like to read

Lamb and Arnold (in Rahim, 2005:17) say that even though they do not have visual impairments, some children have difficulty learning to read. This can happen because their ability to distinguish printed symbols has not yet been developed, such as letters, numbers, and words, for example, children cannot distinguish b, p, and d. Auditory discrimination is the ability to hear similarities and differences in language sounds as an important factor in determining a child's reading readiness.

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### 5. Efforts to Overcome Obstacles in Growing Students' Interest in Reading by Utilizing Reading Corners

Decorate the reading corner neatly and beautifully. The reading corner is designed with an attractive appearance so that students are more interested in reading the book, the basic materials used to create a reading corner use simple tools and materials so that it doesn't require too much money. The basic material used is an unused table at the back of the classroom. The table can be used as a reading corner to minimize expenses and utilize unused materials in class (Hamid, 2015).

a) The school increases the library budget

As a solution or problem that causes low interest in reading, especially in children and adolescents, it is necessary to carry out cooperation between related parties such as the government, educators, as well as parents.

b) Provide motivation and encouragement

School-age children really need encouragement and enthusiasm from their parents and teachers. Motivate children and explain to them the importance of this activity, so they will understand more about the benefits of reading.

### CONCLUSION

From the several problems that the researchers put forward, several conclusions can be drawn, including:

1. The teacher's efforts in utilizing the reading corner to foster interest in reading in class V students in various ways, namely the first by encouraging children to tell stories about what they have read, after telling stories children are asked to exchange books with friends, after that the teacher provides books that interest participants in reading students, then providing reading time and the last is giving rewards or giving gifts.
2. The obstacles faced by teachers in fostering students' interest in reading by utilizing reading corners are the lack of classrooms, the lack of variety of books or limited books, and students who don't like to read.
3. Efforts to overcome obstacles in fostering interest in reading by utilizing reading corners are by decorating reading corners neatly and beautifully so that students' discomfort can be covered, increasing the library budget, and providing motivation and support to these students

### SUGGESTION

Based on the results of research on managing reading corners in the school environment in fostering a literacy culture in SD GMIT Fatumnasi students, the researchers suggest that:

1. Provide adequate facilities, especially the collections in the reading corner need to be updated once a month.
2. Display a collection of books such as comic books or story books.
3. Students need to maintain cleanliness in the reading corner area and not throw away trash so that visitors are comfortable when visiting the reading corner
4. Organize the reading corner as well as possible so that it can attract students to be more diligent in visiting the reading corner.
5. Replace the reading material in the reading corner every month with a different book.

### REFERENCES

- 1) Afrizal. 2017. *Metode Penelitian Kualitatif Sebuah Upaya Mendukung Pengguna Penelitian Kualitatif Dalam Berbagai Disiplin Ilmu*. Depok: Rajawali Pers
- 2) Andi Achru P. (2019). Pengembangan Minat Belajar Dalam Pembelajaran. *Jurnal Idaarah*, Vol. Iii, No. 2, Pp 205-215
- 3) Budiharto, Triyono, & Suparman. (2018). Literasi Sekolah Sebagai Upaya Penciptaan Masyarakat Pebelajar Yang Berdampak Pada Peningkatan Kualitas Pendidikan. *Ilmu Sejarah, Sosial, Budaya Dan Kependidikan*, 5(1), 153–166.
- 4) Dalman. 2017. *Keterampilan Membaca*. Jakarta: Rajawali pers
- 5) Dharma, K. B. (2013). Implementasi Gerakan Literasi Sekolah dalam Menumbuhkan Minat Membaca Siswa di Sekolah Dasar. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.  
<https://doi.org/10.1017/CBO9781107415324.004>
- 6) Dimiyati & Mudjiono. (2006). *Belajar dan Pembelajaran*. Jakarta: PT Rineka Cipta.
- 7) Djara, J. I., Imaniar, M., Sae, E., & Anin, S. (2023). Pengaruh Gaya Belajar Terhadap Hasil Belajar Siswa. *Jurnal Pendidikan dan Kebudayaan (JURDIKBUD)*, 3(2), 226-233.
- 8) Farida Rahim. 2005. *Pengajaran Membaca di Sekolah Dasar*. Jakarta: Bumi Aksara
- 9) Hamid, R. A. (Ed.). (2015). *Kearifan Tempatan: Dari Lisan Ke Aksara Dan Media (Penerbit USM)*. Penerbit USM.
- 10) Hidayah, A. (2017). Jurnal Penelitian dan Penalaran (THE INFORMATION LITERACY ) TIPE THE BIG6. *Pena*, 4, 623–635.
- 11) KEMENDIKBUD. (2016). *Gerakan Literasi Untuk Tumbuhkan Budaya Literasi*. Jakarta: Bumi Aksara.



## Improving Students' Interest in Learning and Language Literacy through Creating Reading Corners for Fifth Grade Students at GMIT Fatumnasi Elementary School

- 12) Komariyah Siti., Afifah, D. S. N., & Resbiantoro, G. (2018). *Analisis Pemahaman Konsep dalam Memecahkan Masalah Matematika Ditinjau dari Minat Belajar Siswa*. Sosiohumaniora. Vol.4, No. 1, February 2018.
- 13) Lakapu, P. A. 2020. Pengaruh Motivasi dan Sarana Sekolah Terhadap Hasil Belajar Siswa Di Kelas IV Sekolah Dasar. *Jurnal Review Pendidikan Dasar*: Vol 6, No 1.
- 14) Mardiyah, A. A. (2019). Budaya Literasi Sebagai Upaya Peningkatan Keterampilan Berpikir Kritis di Era Industri Revolusi 4.0. *Prosiding SNP2M (Seminar Nasional Penelitian Dan Pengabdian Masyarakat)*, 0, 171–176.
- 15) Mashudi, M., & Baskorowati, L. (2015). *Estimasi Parameter Genetik pada Uji Keturunan Alstonia Scholoris Umur Dua Tahun di GunungKidul Yogyakarta*. *Jurnal Pemuliaan Tanaman Hutan*.
- 16) Maytawati, G. H. (2019). Efektivitas Program Sudut Baca dalam Memenuhi Kebutuhan Informasi Siswa SMP N di Surabaya. *Skripsi Departemen Ilmu Informasi dan Perpustakaan FISIP Universitas Airlangga*.
- 17) Morrow, L. M. 2014. Relationships Between Literature Programs, Library Corner Designs, and Children's Use of Literature. *Journal of Education Research*. Vol 75(6), hal 339-344.
- 18) Mutia, P., Atmazaki, & Nursaid. (2018). Implementasi aktivitas literasi di SMA Negeri Batusangkar. *Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, 7(3),257–266.
- 19) Pemerintah Indonesia. Undang-Undang (UU) Nomor 20 Tahun 2003. *Tentang Sistem Pendidikan Nasional*. Sekretariat Negara Republik Indonesia No. 4301. Jakarta.
- 20) Rahim, F. (2005). Pelaksanaan pengajaran membaca di kelas IV SD 08 Padang. *Jurnal Bahasa dan Seni*, 33(1), 1-19.
- 21) Ramandanu, F. (2019). Gerakan Literasi Sekolah (GLS) Melalui Pemanfaatan Sudut Baca Kelas Sebagai Sarana Alternatif Penumbuhan Minat Baca Siswa. *Jurnal Mimbar Ilmu*, Vol. 24 No. 1. 10-19.
- 22) Rohman, S. (2017). Membangun Budaya Membaca Pada Anak Melalui Program Gerakan Literasi Sekolah. *Jurnal Pendidikan Dan Pembelajaran Dasar*, 4(1),151–174.
- 23) Rumengan, Y., & Talakua, C. (2020). *Pengaruh Penggunaan Media Pembelajaran Mobile Learning Berbasis Smartphone terhadap Minat Belajar Siswa SMA Negeri 1 Seram Utara Barat*. *Jurnal BIOEDUN: Program Study Pendidikan Biologi*, 10(2), 33-40.
- 24) Sadli, M., & Saadati, B. A. (2019). Analisis Pengembangan Budaya Literasi Dalam Meningkatkan Minat Membaca Siswa Di Sekolah Dasar. *TERAMPIL: Jurnal Pendidikan Dan Pembelajaran Dasar*, 6(2), 151–164.  
<https://doi.org/10.24042/terampil.v6i2.4829>
- 25) Safa'at. (2019). Peran Sudut Baca Dalam Upaya Meningkatkan Minat Baca Pegawai Dan Pengunjung Di Lingkungan Kantor Kecamatan Kota Baru. *Skripsi Jurusan Ilmu Perpustakaan Fakultas Adab Dan Humaniora Uin Sulthan Thaha Saifuddin Jambi*
- 26) Sardiman, A. M. (2016). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: Rajagrafindo Persada.
- 27) Satgas Gerakan Literasi Sekolah Kemendikbud. (2020). *Desain Induk Gerakan Literasi Sekolah*. Direktorat Jenderal Pendidikan Dasar dan Menengah Kementerian Pendidikan dan Kebudayaan.
- 28) Slameto, S. (2017). *Peningkatan Kinerja Guru Melalui Pelatihan Beserta Faktor Penentunya*. *Jurnal Pendidikan Ilmu Sosial*, 27(2), 38-47.
- 29) Suyono, Harsiati, T., & Wulandari, I. S. (2017). Implementasi gerakan literasi sekolah pada pembelajaran tematik di sekolah dasar. *Suyono Titik Harsiati Ika Sari Wulandari Universitas*, 26(2), 116–123.
- 30) Syardiansah. (2016). Hubungan Motivasi Belajar dan Minat Belajar terhadap Prestasi Belajar Mahasiswa. *Jurnal Manajemen dan Keuangan*, Vol.5, No.1,
- 31) Syardiansah. (2016). Hubungan Motivasi Belajar dan Minat Belajar terhadap Prestasi Belajar Mahasiswa. *Jurnal Manajemen dan Keuangan*, Vol.5, No.1,
- 32) Untari, E. (2017). Pentingnya pembelajaran multiliterasi untuk mahasiswa pendidikan guru sekolah dasar dalam mempersiapkan diri menghadapi kurikulum 2013. *Wahana Sekolah Dasar*, 25(1), 16–22.
- 33) Wulandari, H. (2021). English Literacy Building through Bilingual Story: Children vs Adults. *Issues in Applied Linguistics: Research & Practice*. Deepublish Publisher: Yogyakarta.
- 34) Yuliana, S., Wikanengsih, dan Kartiwi, Y. M. (2020). Penguatan Literasi Berbahasa Indonesia Dengan Gerakan Literasi Sekolah Pada Siswa SMP. *Parole (Jurnal Pendidikan Bahasa dan Sastra Indonesia)* Volume 3 Nomor 3, p. 243-254



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## The Effect of Chayote Juice (*Sechium Edule*) on Mda and Il-6 Levels (Experimental Study on Male Wistar Rats Induced with High-Fat Diet)



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**ABSTRACT:** Dyslipidemia is an increase in total cholesterol, Low-Density Lipoprotein (LDL), triglycerides, and a decrease high-Density Lipoprotein (HDL), Consequences of consuming fat cause the metabolism of free fatty acids resulting in an imbalance between free radicals and the body's natural antioxidants which causes a condition of oxidative stress. Oxidative stress results in tissue damage which triggers an inflammatory reaction that releases pro-inflammatory cytokines such as Interleukin-6 (IL-6) and triggers Malondialdehyde (MDA) due to lipid oxidation in tissues. Consuming antioxidants from outside the body can neutralize this condition, such as chayote juice. The aim of this study is to know the effect of giving chayote juice on the rate of MDA and IL-6 in male Wistar rats who are given a high-fat diet. The research method is experimental research with a post-test-only control group design. The study subjects were 24 male Wistar rats, randomly divided into 4 groups. Group K1 was given standard feed and distillate water. Group K2 was without chayote juice but was given a high-fat diet. Groups- K3 and K4 were given a high-fat diet and chayote juice at doses of 1.8mL/200gBW/day and 3.6mL/200gBW/day, respectively. The study was conducted at IBL FK UNISSULA for 29 days by taking blood to check MDA levels using the TBARS and IL-6 methods using the ELISA method. Results showed that the lowest average MDA level was in the K4 group (0.058 ng/L) and the lowest average IL-6 level was in the K3 group (4.513 ppm). One-way ANOVA test result showed a significant difference in MDA levels with  $p = 0.021$  and IL-6 levels showed no significant difference with  $p = 0.108$ . The Tahmane test result showed the MDA levels in K1 and K4 showed a significant difference in K2 ( $p < 0.05$ ). Test LSD test result showed the IL-6 levels in K3 showed a significant difference to K2 ( $p < 0.05$ ). The conclusion of this study was the administration of chayote juice significantly reduced levels of MDA and IL-6 in the group of rats that received a high-fat diet.

**KEYWORDS:** Siam pumpkin juice, MDA, IL-6

### I. INTRODUCTION

Dyslipidemia is an increase in total cholesterol, Low-Density Lipoprotein (LDL), triglycerides, and a decrease High-Density Lipoprotein (HDL) in blood plasma. Dyslipidemia is a risk factor for cardiovascular disease.<sup>1</sup> Cardiovascular disease due to dyslipidemia occurs due to oxidative stress, LDL oxidation, and changes in inflammatory status.<sup>2,3</sup> Increased LDL due to consumption of fat causes free fatty acid metabolism resulting in an imbalance between free radicals and the body's natural antioxidants which causes a condition of oxidative stress. Oxidative stress causes damage to the vascular endothelium which triggers an inflammatory reaction.<sup>4</sup> Society chooses natural therapy to control hyperlipidemia,<sup>5</sup> one of the ways used is with plants that have natural antioxidants such as chayote juice (*Sechium edule*).<sup>6</sup>

A global Burden of Disease Study reported that nearly 17.6 million deaths were caused by Cardiovascular Disease (CVD).<sup>7</sup> Cardiovascular disease accounts for the highest mortality in the world where around 80% of the global death rate comes from developing countries.<sup>8</sup> Cardiovascular disease is the main cause of death in Southeast Asia.<sup>9,10</sup> The prevalence of cardiovascular disease in Indonesia in 2013 was 0.5% or 883,447 people, meanwhile, in 2018, this figure increased to 1.5% or around 1,017,290 people.<sup>11,12</sup> Previous studies have shown that effective management of patients with dyslipidemia reduces the incidence, mortality, and disease burden of Cardiovascular Disease (CVD).<sup>7</sup>

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Chayote juice (*Sechium edule*) is an herbal plant that contains natural antioxidant compounds such as flavonoids, polyphenols, carotenoids, vitamin C, and vitamin E. These natural antioxidants have the benefit of protecting the body against cell damage caused by ROS, being able to lower lipid profiles.<sup>13</sup> Dyslipidemia causes oxidative stress as a result of increased cholesterol accumulation triggering the production of reactive oxygen species (ROS) so that antioxidants in the body are reduced.<sup>14</sup> An increase in ROS that exceeds the capacity of antioxidant enzymes in the body will cause an increase in lipid peroxidation which damages proteins, DNA (Deoxy Nucleic Acid), and the cell membranes of the body.<sup>15</sup>

A high-fat diet causes an increase in plasma lipopolysaccharide (LPS) and activates toll-like receptor 4 (TLR4) resulting in increased levels of pro-inflammatory cytokines such as interleukin-6 (IL-6).<sup>16</sup> Siamese pumpkin can prevent oxidative stress because it can act as an antioxidant, which works directly with the flavonoid content to prevent oxidative stress, thereby reducing tissue damage, reducing oxidative damage, lipid peroxidation, and inflammation.<sup>17,18</sup> Based on the description above, a study was conducted on the effect of giving chayote juice (*Sechium edule*) against the MDA rate and interleukin-6 in mice fed a high-fat diet.

### II. MATERIAL AND METHOD

#### Experimental Subjects

The research subject is male Wistar rats which were divided into four groups, the control group (K1), the control group which was given a high-fat diet (K2), the treatment group which was given chayote juice therapy at a dose of 1.8 mL/200gBB/day (K3), and the treatment group which was given chayote juice therapy at a dose of 3.6 mL/200 g BW/day (K4). The chayote used in this study was peeled and then washed and then juiced.

#### Administration of Chayote Juice

The K4 group was given the chayote juice dose of 3.6mL/200gBW/day and a high-fat diet. The K3 group by giving a chayote juice dose of 1.8mL/200gBW/day and a high-fat diet, then the control group (K1) by giving a standard-feeding and distilled water. The control group (K2) which was given a high-fat diet and distilled water

#### Data Analysis

The normality and homogeneity data test using Shapiro Wilk and Levene test. The data of MDA and IL-6 levels were analyzed using the One-Way ANOVA, the Tamhane, and the LSD test.

### III. RESULT

#### The Effect of Chayote Juice on MDA Levels

Table 1 shows that the lowest mean MDA level was in the treatment group (K4) with the administration of a chayote juice dose of 3.6mL/200gBW/day and a high-fat diet, then followed by the treatment group (K3) by giving chayote juice dose of 1.8mL/200gBW/day and a high-fat diet, then the control group (K1) by standard-standard and distilled water. The control group (K2) which was given a high-fat diet and distilled water obtained the highest average MDA level. All groups of MDA levels based on the Shapiro Wilk test show a normal distribution with a p-value <0.05 and homogeneity test using Levene test the results are not homogeneous with a p-value of 0.001 (p <0.05) then data analysis using a parametric test One-Way ANOVA. One-Way ANOVA test results showed significant differences in all groups with a p-value of 0.021 (p <0.05).

**Table 1. Results of Average Analysis, Normality Test, Homogeneity Test on MDA Levels and IL-6 Levels**

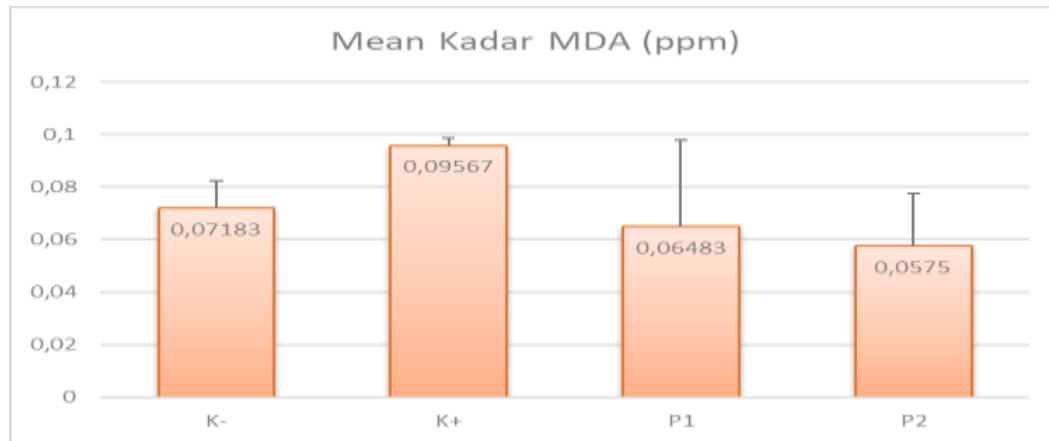
b	Group				Sig.(p)
	K1 N=6	K2 N=6	K3 N=6	K4 N=6	
<b>MDA (ppm)</b>					
Mean	0.072	0.096	0.065	0.058	
Std. deviation	0.011	0.003	0.033	0.020	
Shapiro Wilk	0.073*	0.050*	0.644*	0.627*	
Levene Test					0.001
One Way Anova					0.021***
<b>IL-6 (ng/L)</b>					
Mean	5.043	5.760	4.513	4.812	
Std. deviation	0.985	0.543	0.966	0.861	
Shapiro Wilk	0.154*	0.993*	0.612*	0.118*	
Levene Test					0.334**
One Way Anova					0.108

**Information:** \*Normal p>0.05 \*\*Homogeneous p>0.05 \*\*\*Significant p<0.05

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**Table 2. Differences in MDA levels between the 2 groups using the test LSD**

Group	<i>p-Value</i>
K1 vs K2	0.012*
K1 vs K3	0.998
K1 vs K4	0.649
K2 vs K3	0.360
K2 vs K4	0.029*
K3 vs K4	0.998



**Figure 1. The average of MDA levels between groups**

Based on the data above (Figure 1 and Table 2), it shows that the MDA level in group (K1) has a significant difference in group (K2) with a *p*-value of 0.012 ( $p < 0.05$ ) while there is no significant difference in group (K3) with a *p*-value of 0.998 and group (K4) with a *p*-value of 0.649 ( $p > 0.05$ ). Group (K1) did not have a significant difference to group (K3) with a *p*-value of 0.360 ( $p > 0.05$ ) but there was a significant difference to group (K4) with a *p*-value of 0.029 ( $p < 0.05$ ). There was no significant difference between group (K3) and group (K4) with a *p*-value of 0.998 ( $p > 0.05$ ). Based on the data above, it can be concluded that administration of chayote juice at doses of 1.8mL/200gBW/day and 3.6mL/200gBW/day has a significant effect on decreasing MDA levels in male Wistar rats given a high-fat diet so that the hypothesis statement is accepted.

### The Effect of Siamese Pumpkin Juice on IL-6 Levels

The lowest mean IL-6 levels are in Table 1, namely in the treatment group (K3) with the administration of chayote juice at a dose of 1.8 mL/200gBB/day with a high-fat diet, then successively followed by the treatment group (K4) with the administration of chayote juice dose of 3.6mL/200gBB/day with a high-fat diet and the control group (K1) with standard feeding and distillate water. The control group (K2) which was given a high-fat diet and distilled water had the highest average IL-6 level. All groups of IL-6 levels based on the Shapiro Wilk *test* showed a normal distribution with a value of  $p > 0.05$  and homogeneity test using Levene test the results are homogeneous with a value of  $p = 0.334$  ( $p > 0.05$ ) then the data analysis uses a parametric test using One-Way ANOVA. One-Way ANOVA test result showed no significant difference in all groups with a *p*-value of 0.108 ( $p > 0.05$ ).

**Table 3. Differences in IL-6 levels between the 2 groups using the test LSD**

Group	<i>p-Value</i>
K1 vs K2	0.163
K1 vs K3	0.297
K1 vs K4	0.645
K2 vs K3	0.020*
K2 vs K4	0.070
K3 vs K4	0.554

## The Effect of Chayote Juice (*Sechium Edule*) on Mda and Il-6 Levels (Experimental Study on Male Wistar Rats Induced with High-Fat Diet)

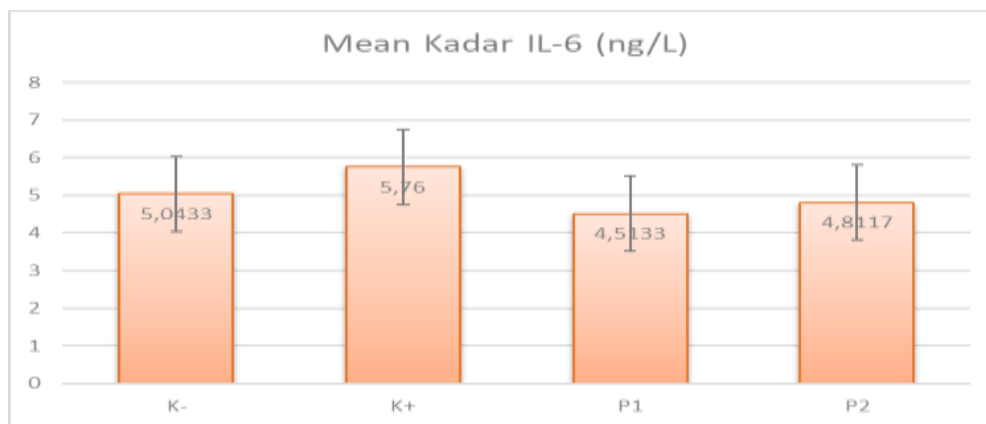


Figure 2. The average of IL-6 levels between groups

Based on the data above (Figure 2 and Table 3). it showed IL-6 levels in group (K1) there was no significant difference to group (K2) with a p-value of 0.163, group (K3) with a p-value of 0.297 and group (K4) with a p-value of 0.645 ( $p > 0.05$ ). Group (K2) had a significant difference to group (K3) with a p-value of 0.020 ( $p < 0.05$ ) but there was no significant difference to group (K4) with a p-value of 0.070 ( $p > 0.05$ ). There was no significant difference between group (K3) and group (K4) with a p-value of 0.554 ( $p < 0.05$ ). Based on the data above, it can be concluded that giving chayote juice with a dose 1,8mL/200gBB/day and 3,6mL/200gBB/day had a significant effect on decreasing IL-6 levels in male Wistar rats given a high-fat diet so that the hypothesis statement is accepted.

#### IV. DISCUSSION

High-fat intake can lead to the accumulation of adipocytes which induce dyslipidemia. This high intake can also increase cholesterol esters, especially LDL, triglycerides, and levels of reactive oxygen species (ROS).<sup>19</sup> An imbalance between energy intake and energy used in physical activity will increase fat tissue deposits, resulting in obesity and accumulation of visceral fat.<sup>20</sup> This condition causes oxidative stress and affects body changes.<sup>18</sup> The treatment group showed increased cholesterol levels ( $> 54$  mg/dL), LDL ( $> 27.2$  mg/dL), and HDL ( $< 35$  mg/dL) as a result of being given a high-fat diet using egg yolks of 2 ml/head/day by means of in sonde for 14 days in (K2), (K3), and (K4).

The results of examining MDA levels in the control group (K2) who were given a high-fat diet without giving squash juice experienced a significant increase compared to the control group (K1), the group that was given chayote juice at a dose of 1.8 mL/200 gBW/day (K3) and 3.6 mL/200 gBW/day (K4) as shown in Table 1. This suggests that hypercholesterolemia will trigger lipid peroxidation. Lipid peroxidation is a reaction that occurs between free radicals and polyunsaturated fatty acids (*polyunsaturated fatty acid*, PUFA) which are present in cell membranes and LDL. As a result, the blood vessels can become thicker, forming products that are toxic to the body, Malondialdehyde (MDA).<sup>21</sup> MDA levels in the group given a high-fat diet and administration of chayote juice at doses of 1.8 mL/200 gBW/day and 3.6 mL/200 gBW/day decreased as shown in Table 1. Siamese pumpkin contains active compounds of flavonoids, polyphenols, vitamin C, vitamin E, and carotenoids. Flavonoids in chayote with 3 c-glycosides and 5 o-glycosides can reduce total cholesterol by inhibiting the absorption of cholesterol in the intestine. Polyphenols as antioxidants donate -OCH<sub>3</sub> and -OH groups which can turn free radicals into stable compounds.<sup>21</sup>

The results of examining IL-6 levels in group (K2) which was given a high-fat diet without giving squash juice experienced a significant increase compared to group (K1), the group that was given chayote juice at a dose of 1.8 mL/200 gBW/day (K3) and 3.6 mL/200 gBW/day (K4) as shown in Table 1. Feeding fat can induce ROS which will have an impact on lipid metabolism. When there is a disturbance of lipid metabolism, there will be an increase in adipose tissue mass caused by the incoming energy being higher than the energy expended, resulting in an increase in the size and number of adipose tissue. An increase in the size and number of adipose tissue leads to the production of pro-inflammatory cytokines, one of which is IL-6. This is caused by oxidative stress which will activate Bax in mitochondria so that release occurs cytochrome-c.<sup>22</sup> This release has an impact on inhibiting the flow of electrons in the respiratory chain. Levels  $\beta$ -oxidation and FFA also increased so that there was an increase in the levels of NADH, FADH, and sending electrons to the respiratory chain. This imbalance in sending electrons and removing electrons causes an accumulation of electrons in the respiratory chain which will form an excess nitric oxide (NO) by nitric oxide synthase (iNOS) which then activates NF- $\kappa$ B expression to induce IL-6.<sup>23</sup>

IL-6 levels in the group given a high-fat diet and administration of chayote juice at doses of 1.8 mL/200gBW/day and 3.6 mL/200gBW/day decreased as shown in Table 1. Siamese pumpkin has benefits as an antibacterial, antioxidant, and anti-

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inflammatory depending on the bioactive compounds contained in it. The COX-2 enzyme is an enzyme involved in the production of prostaglandins and inflammatory cytokines such as IL-6, the flavonoids in chayote can help suppress the activity of the COX-2 enzyme so that the production of prostaglandins and IL-6 can be suppressed. This can help lower IL-6 levels in the body. Then the flavonoid compounds in chayote can help inhibit NF-κB activation so that IL-6 production can be suppressed. It can also help lower IL-6 levels in the body.<sup>24</sup> The limitation of this study was the stability of the body weight of the rats before and after treatment, this was due to the administration of doses that did not match the body weight of the rats. Rats with an average body weight of 250 grams should be given a dose according to body weight so it is hoped that research can be carried out using a dose of chayote juice according to the rat's body weight. Researchers did not carry out total cholesterol examinations after the treatment of the rats so it is expected that total cholesterol examinations could be carried out after the treatment.

### V. CONCLUSION

The administration of chayote juice at a dose of 1.8 mL/200 gBW/day and 3.6 mL/200gBW/day can decrease the MDA and IL-6 levels in male Wistar rats given a high-fat diet.

### ACKNOWLEDGEMENT

The authors declare no conflict of interest and no involvement of sponsors or funding for this research.

### REFERENCES

- 1) Perk J, De Backer G, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). *Eur Heart J*. 2012;33(13):1635-1701. doi:10.1093/eurheartj/ehs092
- 2) Lu L, Sun RR, Liu M, Zheng Y, Zhang P. The Inflammatory Heart Diseases: Causes, Symptoms, and Treatments. *Cell Biochem Biophys*. 2015;72(3):851-855. doi:10.1007/s12013-015-0550-7
- 3) Rivera-Mancía S, Jiménez-Osorio AS, Medina-Campos ON, et al. Activity of antioxidant enzymes and their association with lipid profile in Mexican people without cardiovascular disease: An analysis of interactions. *Int J Environ Res Public Health*. 2018;15(12). doi:10.3390/ijerph15122687
- 4) Wahyudi T, Widyastuti SK, Suarsana IN. Mouse Plasma Lipoprotein Profile in Hyperglycemia Conditions. *Indonesian Med Veterinarian*. 2015;4(2):116-121.
- 5) F C NO, T JJ, U UR, N UM, I A V. Phytochemical screening and effect of ethanolic leaf extract of *Piliostigma thonningii* on serum lipid profile of male albino rats. *J Nat Prod Plant Resour*. 2013;3(2):5-9.
- 6) Listyawati DI. Therapeutic Effects of Siamese Pumpkin (*Sechium edule*) Juice on Protease Activity and TNF-α Expression in Jejunum of Indomethacin-Induced Inflammatory Bowel Disease (IBD). Published online 2014.
- 7) W. F, Y. W, K. L, Y. Y, S. L. Exploration of dyslipidemia prevalence and its risk factors in a coastal city of china: A population-based cross-sectional study. *Int J Clin Exp Med*. 2019;12(3):2729-2737.
- 8) Alshamiri M, Ghanaim MMA, Barter P, et al. Expert opinion on the applicability of dyslipidemia guidelines in Asia and the middle east. *Int J Gen Med*. 2018;11:313-322. doi:10.2147/IJGM.S160555
- 9) Wong ND. Epidemiological studies of CHD and the evolution of preventive cardiology. *Nat Rev Cardiol*. 2014;11(5):276-289. doi:10.1038/nrcardio.2014.26
- 10) Narain JP, Garg R, Fric A. Non-communicable diseases in the South-East Asia Region: Burden, strategies and opportunities. *Natl Med J India*. 2011;24(5):280-287.
- 11) Mansbridge J. RISKESDAS. *Health Risk DASR*. 2013;7(5):803-809. doi:10.1517/13543784.7.5.803
- 12) Republic of Indonesia Ministry of Health. Basic Health Research National Report. *RI Ministry of Health*. Published online 2018:1-582.
- 13) Sateesh G, Rao. Anti-Ulcer Activity of *Sechium Edule* Ethanolic Fruit Extract. *Pharma Innov*. 2012;1(5):77-81.
- 14) Hamada A, Esteves SC, Agarwal A. Insight into oxidative stress in varicocele-associated male infertility: Part 2. *Nat Rev Urol*. 2013;10(1):26-37. doi:10.1038/nrurol.2012.198
- 15) G Morabito, P Kucan MS. Endocrine, Metabolic & Immune Disorders - Drug Targets. *J food Microbiol*. 2015;15(1):1-2.
- 16) Peluso I, Raguzzini A, V Villano D, et al. High Fat Meal Increase of IL-17 is Prevented by Ingestion of Fruit Juice Drink in Healthy Overweight Subjects. *Curr Pharm Des*. 2012;18(1):85-90. doi:10.2174/138161212798919020
- 17) Rushworth GF, Megson IL. Existing and potential therapeutic uses for N-acetylcysteine: The need for conversion to intracellular glutathione for antioxidant benefits. *Pharmacol Ther*, 2014;141(2):150-159. doi:10.1016/j.pharmthera.2013.09.006

## The Effect of Chayote Juice (*Sechium Edule*) on Mda and Il-6 Levels (Experimental Study on Male Wistar Rats Induced with High-Fat Diet)

- 18) Forrester SJ, Kikuchi DS, Hernandes MS, Xu Q, Griendling KK. Reactive oxygen species in metabolic and inflammatory signaling. *Circus Res.* 2018;122(6):877-902. doi:10.1161/CIRCRESAHA.117.311401
- 19) Kolderup A, Svihus B. Fructose Metabolism and Relation to Atherosclerosis, Type 2 Diabetes, and Obesity. *J Nutr Metab.* 2015;2015. doi:10.1155/2015/823081
- 20) Putri EC, Situngkir D. Education on Hyperlipidemia and Hyperglycemia and How to Overcome It in Loading and Unloading Workers. *J I'm Masy Indonesian.* 2022;2(3):815-820. doi:10.54082/jamsi.332
- 21) Lusiantari R, Pramaningtyas MD, Nurmasitoh T, Pattimura RH, Dewanti A. Shortening tends to increase aortic foam cell count and wall thickness in male Wistar rats. *Universa Med.* 2018;37(1):13. doi:10.18051/univmed.2018.v37.13-18
- 22) Ferenčič A, Šoša I, Stemberga V, Cuculić D. Obesity-related low-grade chronic inflammation: implementation of the dietary inflammatory index in clinical practice is the milestone? 2018;54(2):108-117. doi:10.21860/medflum2018
- 23) Glass CK, Olefsky JM. Inflammation and lipid signaling in the etiology of insulin resistance. *Cell Metab.* 2012;15(5):635-645. doi:10.1016/j.cmet.2012.04.001
- 24) Kesh SB, Sarkar D, Manna K. High-fat diet-induced oxidative stress and its impact on metabolic syndrome: A review. *Asian J Pharm Clin Res.* 2016;9(1):38-43.



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## Application of Total Quality Management in the Operation of Life Insurance Distribution Channels in Vietnam



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**ABSTRACT:** By the method of document research, analysis and synthesis, the article has clarified the whole set of objectives. Accordingly, the article presents the theory and some case studies on Total Quality Management content. Review of activities of life insurance distribution channels in Vietnamese insurance enterprises. Assess the status of quality management in these activities at life insurance enterprises. From the existing points in the operation of the distribution channel, we have studied and analyzed the causes of service quality deterioration, distrust and satisfaction for customers using life insurance products. Finding a way to eliminate limitations is the primary concern of insurance companies. Our analysis results have shown that enterprises applying Total Quality Management are the solution to improve service quality in the operation of insurance product distribution channels. Determine the development goals of the business in each period to build a system of distribution channels and apply an appropriate quality management system. Determined the need and determination to use Total Quality Management in insurance distribution channel activities. Get all employees involved in the application of Total Quality Management. These are some effective measures to support life insurers in implementing Total Quality Management for their business.

**KEYWORDS:** Total Quality Management, distribution channel, Insurance, application, Vietnam

### 1. INTRODUCTION

Along with the development of the insurance market, including the life insurance segment, distribution channels play an important role in connecting customers and businesses. There are many traditional and non-traditional distribution channels on the market such as insurance agents, bancassurance, postal agents and other alternative channels. A distribution channel is considered important, supporting business development. However, in the process of operation, the distribution channel still faces many legal problems, causing loss of business image, and affecting customers' interests. In order to develop sustainably, insurance enterprises need to take measures to improve the quality of distribution channels. Total Quality Management is a system that helps businesses improve the quality of services and products to meet customer satisfaction. Applying a quality management system will require businesses to voluntarily improve quality at each stage of operation and strict operating procedures. The purpose of the article is to clarify the theoretical basis of Total Quality Management. Evaluation of the current status of operational quality of life insurance product distribution channels. What is the reason why life insurance businesses should apply Total Quality Management in distribution channel activities? What solutions support the application of Total Quality Management in life insurance businesses?

### 2. LITERATURE REVIEW

#### 2.1. Total Quality Management

Total Quality Management proposed by W. Edwards Deming et al. has received much agreement from business managers in the United States. It is a management system that helps organizations and businesses improve product quality. Total Quality Management monitors quality in each stage and in each activity of the organization in order to eliminate inappropriate factors caused by low-quality activities. The quality of an organization's work, products or services will be competitive when balancing two factors, cost and quality. This system has continuously spread and become a movement used by many industries from manufacturing, services, finance, education, health care, and political organizations. Many studies on Total Quality Management have been published in reputable journals and compiled in scholarly literature. Economic management organizations also helped promote this system to spread on a large scale and build an ideology of Total Quality Management. The goal of this system is to improve the quality of products and services to the highest level. Thereby attracting attention, and agreement and increasing image value for the business. Businesses that achieve the above goals will receive love and loyalty from customers through good product quality that exceeds their expectations. A special feature of Total Quality Management is that it requires businesses to



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maintain all the quality improvements that have been achieved and always look forward to more perfection in the future. All efforts to improve the quality of services or products when applying this system are done on a voluntary basis by the entire workforce.

### 2.2. Study Overview

Research by Beer, (2003) on Total Quality Management is the work capacity of the company's leadership staff in: Commitment to development-oriented by Total Quality Management; Decision making and behavior must be consistent with this system; Developing mechanisms, policies, functions, leadership skills and teamwork culture for the application of Total Quality Management; Create an equal environment in the dialogue about progress in the transition of management systems to Total Quality Management. Research by Wruck & Jensen (1994) confirmed that Total Quality Management provides a historically new approach to improving organizational performance. This approach goes from a solid conceptual foundation at the same time as a strategy to improve quality and performance when it is adopted by all employees and the organization (Hackman & Wageman, 1995, p.309). Research by Powell (1995) identifies the characteristics associated with Total Quality Management. According to the author, quality training, operational process improvement often do not produce results, but only some unremarkable characteristics such as personnel behavior, corporate culture and empowerment and trust of employees management with new employees is an advantage to help improve service and product quality (p.15). An in-depth study by Larson & Sinha (1995) on Total Quality Management and how this system works. Accordingly, the author has conducted research on the perception of Total Quality Management of quality managers. The survey was conducted with 250 quality control professionals on the impact of using Total Quality Management on structure, process and results. The author's research results show that quality and productivity increase when using Total Quality Management. Their customers are satisfied with the quality of goods and services they receive. Employees in the enterprise have connections, common determination and satisfaction with the environment and remuneration from the enterprise (p.53).

### 2.3. Distribution channel of life insurance enterprises

When life insurance appeared on the Vietnamese market, the form of product distribution was simple: advertising, press and word of mouth. The objects of word of mouth are the business's employees, and later turned into traditional distribution channels, accounting for the highest percentage of revenue in the company. This target group is the current distribution channel of insurance agents. Distribution channels through brokerage organizations also developed right after the agency distribution channel and it is also a traditional distribution channel. After that, the activity of selling insurance products through banks was gradually accepted by Vietnamese businesses after seeing the positive results of other countries in the world. Insurance enterprises can rely on the advantages of banks such as branches spread across the country, offices, employees and a shared database of potential customers from the bank, making this type of business extremely profitable benefits for both parties. Digital-based sales channels and technology partners have been developed recently following a series of changes from the 4.0 industrial revolution. These two new distribution channels are growing and capturing an increasing revenue market share over the years. Although the performance of these non-traditional channels is still not high, in the future, it can become the main sales channel of the business. The distribution channel data and its size are presented in Table 1.

**Table 1. Insurance distribution channel and scale in the period of 2018 -2022**

Year	Agents	Other Channel					
		Banks		Other Organization		Other Distribution Channel	
		Quantity	Number of advisers	Quantity	Number of advisers	Quantity	Number of advisers
2018	693,448	58	57,093	125	11,590	9	745
2019	568,970	59	73,013	485	225,419	21	4,034
2020	849,254	57	85,553	502	237,719	27	7,548
2021	668,744	52	103,891	521	140,640	30	14,527
2022	645,764	54	130,500	530	140,718	35	18,855

**Source:** Insurance Association Vietnam

From the data in Table 1, we can see that the size of distribution channels through agents is the most unstable, followed by distribution channels through banks. At the same time, we can see that other distribution channels continuously have strong growth rates year by year.

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## **2.4. Activities of insurance distribution channels in enterprises**

Insurance distribution channels have many different types such as the degree of independence from the business, the form of organization, the level of specialization, or the level of management. Although there are many types, the activities of distribution channels include 5 main contents. Product introduction and sale activities. Insurance distribution channels represent insurers to approach potential customers to introduce, present, answer, and persuade customers to buy insurance products to meet their life risk protection needs, live, and do business. The activity of arranging the conclusion of insurance contracts. Perform the tasks of providing relevant forms and collecting relevant information for the risk assessment process or other related documents for customers. Insurance premium collection. The distribution channel is responsible for notifying the insurance premium, directly collecting the premium for the first time, and periodically paying it back to the business. Compensation arrangements. Distribution channels must receive claims, guide claim procedures, and organize compensation payments when an insured event occurs. Other activities. In addition to the main activities mentioned above, the distribution channel must manage insurance contracts, receive, assist in answering questions related to insurance contracts, and assess losses for customers.

## **3. METHODS**

Methods of document research. We conducted a search for documents related to Total Quality Management on the Internet tool. All reports, research articles, books, and documents on Total Quality Management are published, clearly sourced, and are not controversial. With secondary data on the status of operation and quality management at life insurance enterprises, we collect from the control board, operational reports and management reports. In addition, the data on the size of the distribution channel is collected from the data of the Vietnam Insurance Association over the years.

Methods of analysis and synthesis. Based on literature and secondary data has been collected. We aggregate and categorize separate content groups for analysis. The analytical method is used to analyze Total Quality Management, the distribution channel of the life insurance business and its activities. In addition, this method helps us in-depth analysis of the current state of quality management in distribution channel operations. Identify the need for quality management in distribution channel activities. Finally, we analyze measures to help life insurers successfully apply Total Quality Management.

## **4. RESULTS**

### **4.1. Actual situation of quality management of distribution channel activities of life insurance enterprises**

Currently, most life insurance businesses have obtained ISO quality certificates, but the quality of their services and products has not been appreciated by customers. In addition to the shortcomings of life insurance contracts as intangible products, customers only receive commitments from businesses, there are many shortcomings in customer support and care that come from the channel's own operations. distribution. Currently, violations of the insurance distribution channel are mainly reported by public opinion and management agencies through reports of insurance enterprises and through inspection and examination. Despite the management of insurance enterprises and the supervision of state management agencies, there are still many violations in the activities of distribution channels. A series of personnel in the distribution channel were disciplined, fired, or terminated from contracts with units in the distribution channel for violating the practice regulations and the law. Major violations of distribution channels include Misappropriation of premiums, breach of contract between insurers and insurance distribution channels, violation of company rules, and false advertising of information. Truth or distribution channels work for many insurance businesses. These distribution channel violations have significantly reduced customer satisfaction and trust. In addition, the constant fluctuation of personnel in the main distribution channel, which is the insurance agent channel, affects the quality of consulting. Looking at the data in Table 1, we see that the number of agents who quit their jobs annually accounts for 30% to 60% of the total number of agents in the insurance market. Because human resources always tend to decrease sharply, businesses recruit agents massively. This cause leads to the quality of customer care and product advice not reaching the desired quality.

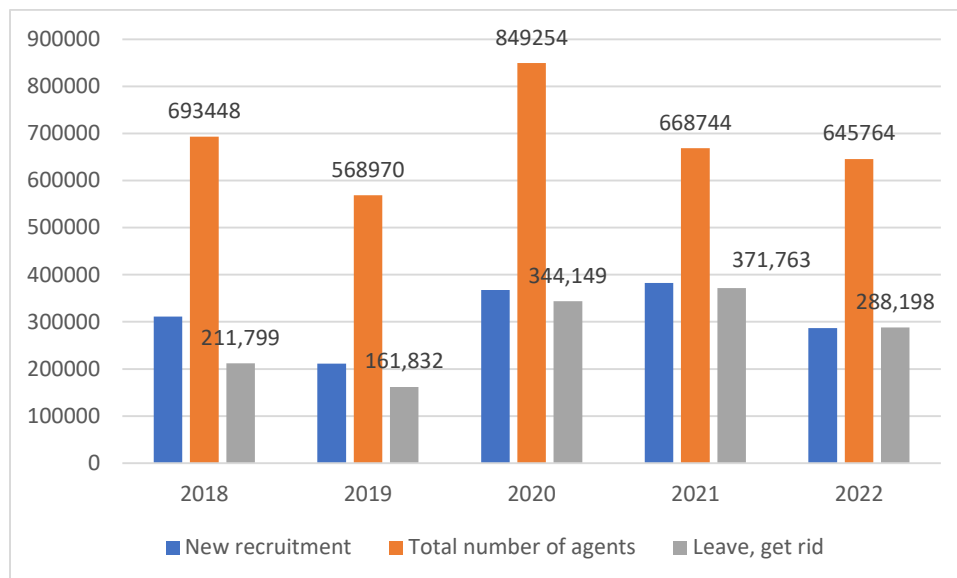


Figure 1. Insurance agent hiring and firing data of the life insurance market

Source: Source: Insurance Association Vietnam

**2.4. Reasons to apply Total Quality Management in insurance distribution channel activities**

As we all know quality is measured by the satisfaction of needs. Therefore, a product, in addition to the value that creates it, also needs to satisfy the needs of the user to be considered a quality product. With the characteristics of products and services, the factor that brings customer satisfaction is an important part of evaluating the product quality of life insurance enterprises. With the assigned function, the insurance distribution channel is performing activities directly related to customers. At the same time, the insurance distribution channel also has a very important work content, which is to arrange compensation settlement through the customer's claim. The mistakes in the operation of the distribution channels as mentioned above make the product quality of the insurers decrease. In addition, because they work directly with customers, distribution channels are also the recipients of feedback on service quality and insurance products from customers. Personnel at distribution channels who do not regularly meet and discuss after signing the contract will not be able to grasp the wishes of customers to promptly support them. Thus, it can be seen that the operation of distribution channels is very important. Within the business, it directly affects the image, brand and reputation of the insurance business. In the scope of society, it indirectly affects the interests, social projections, and social security. Because of this, the application of Total Quality Management in the operation of the insurance distribution channel is essential.

**4.3. Suggestions on applying Total Quality Management in distribution channel activities of life insurance businesses**

Insurance distribution channels play a key role in the business's development goals. Controlling and improving quality in distribution channel activities is the solution to retaining customers and developing sustainable market share. To build a quality management system suitable for the operation of the distribution channel, enterprises need to understand the characteristics of the distribution channel. Determining the development goals of the enterprise in each period to develop the goal of developing the distribution channel system and applying an appropriate quality management system. To be able to apply Total Quality Management in distribution channels, we propose the following solutions.

Enterprises must determine the necessity and determination to apply Total Quality Management in the operation of the insurance distribution channel. Total Quality Management always starts at the top level. Company leaders need to be determined to improve the quality of distribution channels. Enterprises, after having a high degree of consensus among the leadership and key staff, need to approve policies, objectives, strategies, programs and joint action plans to improve the quality of their operations distribution channel. For example, businesses need to develop clear policies on recruitment of distribution channels. There are specific policies to encourage distribution channels to perform their assigned activities with quality. Management also needs to be present at the Total Quality Management awareness sessions for distribution channels. Timely answers to questions and motivates, motivates distribution channels to improve quality in their location activities.

Satisfying customer requirements is the goal of management and works for quality. Customer orientation is both a principle and a requirement for distribution channels when applying Total Quality Management. In product consulting activities, distribution channels need to comply with ensuring the interests of customers first, then the interests of the business and themselves. Distribution channels do not run after sales. Absolutely not for profit but advise customers with false or unclear information about

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insurance exclusions or legal issues on contracts. Consulting activities on poor-quality products affect the interests of customers when an insurance event occurs.

Applying Total Quality Management in the operation of the distribution channel requires the full participation of all members of the company. Business leaders must show determination and good policy in applying Total Quality Management to their distribution channel activities. Relevant departments such as the strategy department need to develop appropriate training and recruitment plans for the internal quality control department and the management department in the company based on the development orientation. The product development department needs to support sales channels to solve insurance policy issues in order to improve product quality.

Insurers need to provide quality training for their distribution channels. Service quality is measured by customer satisfaction. What you need to do, therefore, is ensure that your distribution channels are well-tuned and comprehensively supported at every stage of your operations. In sales activities, distribution channel employees do not use any methods that may adversely affect the product or company image. Distribution channels need to understand all the advantages and disadvantages of each product to advise customers to make the best choice for themselves, not by consulting or by a company. Businesses should not focus too much on growing the size of the sales channel. Life insurers should prioritize the quality of their distribution channels. It is necessary to build a quality management team, to evaluate the performance of distribution channels through quality measurement tools. The quality management team needs to be in constant direct contact with the distribution channels. Provide timely guidance or prevent violations when they have not yet caused consequences or harm to customers and businesses. The insurance company needs to have an internal communication system from the corporation to its branches and distribution channels so that policies in managing the operation quality of distribution channels are communicated as quickly and fully as possible. most enough.

### 5. CONCLUSION

Considering the above advantages, it can be affirmed that Total Quality Management is the system that insurance companies should apply. The use of this system by insurance companies in parallel with international quality certification standards is a solution to improve product quality and customer satisfaction. The articles are limited because there are no actual results proving the effectiveness of the application of the quality management system in the distribution channel activities of enterprises. However, in some proposals such as Total Quality Management, the purpose of this system is always to start at the top, meet the needs of customers, or train and mentor employees. We hope to make the application of Total Quality Management in the enterprise more practical by using distribution channels to improve quality.

### REFERENCES

- 1) Beer, M. (2003). Why total quality management programs do not persist: the role of management quality and implications for leading a Total Quality Management transformation. *Decision Sciences*, 34(4), 623-642.
- 2) Insurance Association of Vietnam (2018-2022), *Insurance fact book from 2018 to 2022*, Insurance Association of Vietnam, Hanoi, Vietnam
- 3) Hackman, J. R., & Wageman, R. (1995). Total quality management: Empirical, conceptual, and practical issues. *Administrative science quarterly*, 309-342.
- 4) Larson, P. D., & Sinha, A. (1995). The Total Quality Management impact: a study of quality managers' perceptions. *Quality Management Journal*, 2(3), 53-66.
- 5) Powell, T. C. (1995). Total quality management as competitive advantage: a review and empirical study. *Strategic management journal*, 16(1), 15-37.



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## The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines



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**ABSTRACT:** This research is about, "The innovation of new dry ports in Zimbabwe: the Critical Success Factors (CSF) and fault lines." Zimbabwe wanted to start four new dry ports across the country and researchers wanted to help by carrying out research on critical success factors to make these dry ports a success, based on success stories elsewhere, and avoid having another white elephant or disappointment. Researchers used the survey questionnaire method as well as face to face interviews, expert panel interviews at universities, observation and literature review in this research. Findings revealed that dry ports required total connectivity to strategic national institutions and corporates like warehouses, bonded warehouses, airports, Ministries, roads, Customs and Excise Department and railways, and these must all fully embrace e-government/smart supply chain and be strategically linked to all importers and exporters as well as critical trade and related government departments. This is a new concept in Zimbabwe but quite old elsewhere. Systems and institutions have improved a lot but still needed further improvement in Zimbabwe to march SADC/COMESA competitors like South Africa, Zambia, Botswana and Mozambique. It was found that critical skills, ports, Customs and investment infrastructure in Zimbabwe needed to be improved as well as processing and turnaround time to match best practices in SADC/COMESA and globally. A One Stop Shop for investment was there but not fully operationalised to cover all transactions, is about partly operational. Delayed deliveries and wrong documentation were experienced sometimes due to port and Customs delays or transport and loading delays. Zimbabwe had made great strides no doubt and was marching on for stardom and big achievements. This paper is futuristic and will be mostly based on best practices globally which Zimbabwe can learn from and start successful dry ports that really add value to the national economy, and avoid toxic bottlenecks and cost overruns. It was time Zimbabwe started to seriously adopt smart blockchain technologies like South Africa to improve efficiencies and turnaround time. One of the biggest frustrations and costs in the value chain was customs delays, fuel shortages and power outages. Something must be done long-term to address these bottlenecks. Dry ports were just like any other business and were concerned about ease of doing business, national competitiveness, country of origin effect, and national image. A business was a business regardless of sector, as they all used the same benchmarks and standards, and deliverables were achievable in a conducive national business environment which generated maximum profits to shareholders and taxes to the government whilst creating thousands of jobs, giving a world-class logistics service, being a national prestige project, national pride and point of reference, giving wide product choice and prosperity to the nation, and operating with environmental protection and ethics in mind. Zimbabwean politicians, the population at large, NGOs, and industrialists needed to get this message as clear as possible.

**KEYWORDS:** Critical Success Factors, Dry Ports, Fault Lines, Innovation, Zimbabwe

# The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines

## BACKGROUND

In Southern Africa, Zimbabwe is a landlocked country. A country with no coastline is known as a landlocked country. As a result, a landlocked country is completely surrounded by land, has no direct ocean contact at its boundaries, and so has no coastline (Gichuhi, 2021). A landlocked country faces a geographic disadvantage due to its distance from seaports (Mokua, 2020). A landlocked country faces difficulties with maritime transit access as a result of its geographic disadvantage. To make matters worse, a landlocked developing country has a more challenging scenario as a result of both its physical location and economic issues (Chingarande et al., 2020). As a result, landlocked developing countries are frequently poorer than their coastal counterparts.

Dry ports have emerged as a result of containerization and globalization. Dry ports serve as hubs for freight moving from seaports to inland destinations and vice versa (Khaslavskaya & Roso, 2019). Dry ports have been hailed as an essential component of a modern multimodal transportation logistics system all over the world. Most African countries, for example, have adopted dry ports, with customs operations taking place there. In South Africa, for example, the City Deep dry port alleviates capacity issues at the Durban port.

Dry ports in landlocked nations, such as Zimbabwe, that are connected to seaports by efficient rail constitute an economic instrument for reducing maritime transport access constraints and enhancing landlocked countries' economic growth and competitiveness (Chingarande et al., 2020). Dry ports have been high on Zimbabwe's agenda for the past decade. While it is obvious that a close-range dry port will not only reduce seaport congestion but will also attract more cargo from Zimbabwe and neighbouring countries to the seaport, a dry port that is more than 2,000 kilometres away from the shippers is unlikely to benefit Zimbabwean shippers in eliminating the traditional costs of being landlocked because the issues of long distance and multiple borders remain unsolved.

Despite the fact that numerous nations in Southern Africa are investing in dry ports at various phases, the researcher believes that close-range dry ports in coastal states provide little economic benefit to shippers from landlocked countries if distance, time, and mode of transit stay constant. This study adds to the current body of knowledge on marine transport and logistics by focusing on dry ports as a topic of relevance to both landlocked and maritime countries. Furthermore, dry ports may provide a long-term answer to landlocked countries' challenges.

The disadvantages of being landlocked are presented in Figure 1 below:

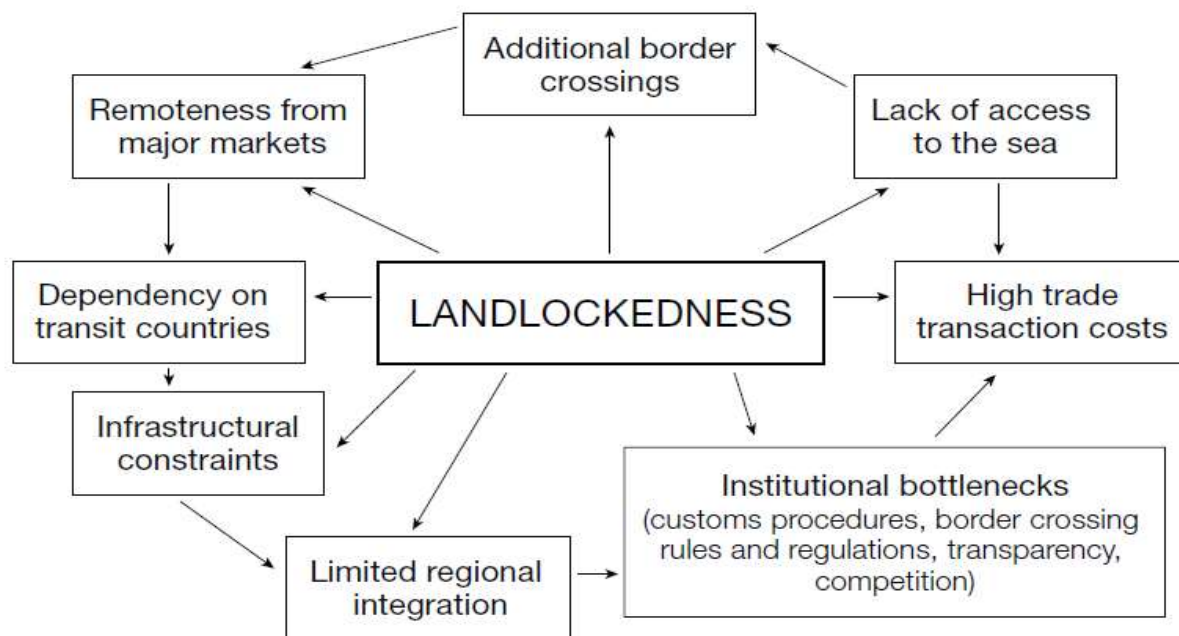


Figure 1: Disadvantages of a landlocked country

## STATEMENT OF THE RESEARCH PROBLEM

Two theories guide this research and these are the theory of market orientation and the accelerator theory of investment as they apply to dry ports. Market orientation is a company philosophy focused on discovering and meeting the needs and desires of a company's customers through its products mix, and in this instance dry port businesses will be expected to meet foremost the needs of their diverse portfolio of customers directly, then the needs society and the dictates of corporate social responsibility and sustainable business.

## The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines

The accelerator theory of investment, in its simplest form, is based upon the notion that a particular amount of capital stock is necessary to produce a given output. By definition, net investment equals gross investment minus capital consumption allowances or depreciation. Investment must be maximized for better productivity and profit maximization. Does Zimbabwe have an environment where this is possible? Researchers must put themselves in the day in the life of an investor, business person, business customer and government (the political class) – what do they want and expect? Only then can incisive analysis be done. This research would question and critique the levels of investment in the dry ports sector and why they are what they are, and what could be done to maximize investment and business in the sector. The purpose of this research is to contribute to the success of Zimbabwe Vision 2030 and diversification into logistics with focus on dry ports, and advance critical ideas to drive this plan forward. Zimbabwe is working to establish a solid logistics industry throughout the country as part of Zimbabwe Vision 2030 to diversify the Zimbabwe economy and industry beyond the agriculture and primary model driven model to a knowledge society insulated from reliance on agriculture and primary products income.

The country has achieved phenomenal and admirable progress in dry ports but more still needed to be done. The country faces many teething problems which have to be solved as the exercise progresses. Some of the challenges are economic sanctions imposed by Western countries, political polarization created by political opportunists and political mongrels, regular strikes and demonstrations, a semi-collapsed economy and health system, the flight of local skilled labour in supply chain, partly unproductive farms, marketing and other professions/disciplines to other countries, the slow operationalization of the One Stop Shop Concept throughout the country, cumbersome new business registration procedures, high corruption levels, lack of rule of law, endless farm invasions, shortage of foreign currency, pariah state status and negative country of origin effect. Logistics was one of the most difficult industries on earth linking firms, government, society and nations in a delicate matrix of trade, politics and economics. Moreover, Zimbabwe will be competing for investment, markets and talent with regional powerhouses like South Africa, Botswana, Namibia and Zambia, as well as facing global competition. American professors Friedman and Mandelbaum said that countries did not decline because of big mistakes but it was many small mistakes in policies and strategies which cumulatively did maximum damage to the economy. This warning needed to be heeded by national economic planners in any country. Research is required to inform government, industry and society about correct policies, alternatives, opportunities, risks and pitfalls for dry port excellence.

The USA has always had a five factor development strategy which helped them conquer the whole world economically and dominate global economic and political affairs and these were:- superior education system, best infrastructure, highly skilled immigration promotion, research and development and lastly appropriate national regulations, and said the USA had to ensure a steady supply of highly skilled immigrants in science, engineering and technology, among many critical disciplines (Friedman & Mandelbaum, 2011). The USA is well known for recruiting the best students and faculty from all over the world into its universities and on graduating granting them citizenship after a certain time frame working in America. This strategy was rare and frowned upon in many countries saying it caused cultural contamination, destroyed national identity and changed national demographics completely, yet it was the best strategy to outsmart other countries in innovation and new product development, and was most difficult to copy. That created the greatest concentration of brainpower in the world in the USA and created the world's largest economy and juggernaut. Where did Zimbabwe stand in this respect? Field research would shed light on this. With the unity of purpose in Zimbabwe nothing is impossible. This paper contributes critical research to this national ethos and debate.

Shah (2015), warned procurement practitioners and industrialists saying the ten major challenges future leaders in procurement would face were:- Focus on strategic relationships, continuously looking for new markets, global supply chain risk, exchange rate volatility, political instability, integrate risk management in sourcing, using free trade agreements and tax havens, using of big data and analytics, technological innovation and finally having the right skills and influencing skills which means working collaboratively with other experts in and outside your organization. How prepared were Zimbabwe businesses/government in these aspects? Logistics clusters depend on supportive government in terms of public infrastructure, paying for and maintaining and regulating the use of key infrastructure assets such as roads, railways, canals, ports and airports and user friendly regulations on land use, infrastructure use, conveyance operations and trade to promote logistics clusters. The Singapore government is renowned for both high efficiency and low corruption, an ill affecting many governments in the world, (Sheffi, 2014). There were lessons for Zimbabwe here as it works towards establishment of world class dry ports as engines to drive the economy and as diversification measures. Zimbabwe was unlucky to be one of the countries used as global examples of having the highest corruption levels in the world as well as impunity were known looters and thieves roamed the country scot free enjoying their loot. That destroyed investor confidence as well as public confidence and trust. Business was all about trust and confidence building. Business ethics was poor here as well as respect for rule of law. Those were clear fault lines damaging the country besides other issues.

Shipping and forwarding succeed when run by devoted patriotic citizens as it carries many risks for countries like smuggling, duty avoidance, transfer pricing, human trafficking and others. Zimbabwean people are hardworking, diligent, love their country fully,

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and full of patriotism and national identity. They loved and embraced the Zimbabwean flag, their symbol of nationhood. Unlike what one sees around the world where some countries do not have a large diaspora population, Zimbabwean people liked and loved to work in their own country and jetted out for studies and came back to serve their country upon graduation if they go on foreign studies on scholarships or self-funded. Patriotism orientation mostly originated in the USA where they teach Citizenship Education module to every student who enters college and one sees how much Americans loved their own country with valor. It is wrong and inconceivable for any country to exclude Citizenship Education as a compulsory course for all college/university students to build unquestionable patriotism.

### Objectives and research questions

The objectives of this research are to: -

- a. Establish status and issues affecting dry ports and their customers in Zimbabwe;
- b. Establish and evaluate Key Performance Indicators (KPIs) in dry port management in Zimbabwe;
- c. Establish global best practice in dry ports;
- d. Identify Zimbabwe's position in the SADC and the world of dry ports management;
- e. Establish the types of institutions and practices that are required for Zimbabwe to excel in dry port management;
- f. Do a comprehensive literature review to be educated on dry ports.

### The research questions to be answered by this research were: -

- a. What is the status and issues affecting dry ports and their customers in Zimbabwe?
- b. What are the KPIs of dry ports and were they being achieved in dry port management in Zimbabwe;
- c. What were the global best practices in dry port management?
- d. What is Zimbabwe's position in the SADC and the world of dry ports management?
- e. What were the types of institutions and practices that were required for Zimbabwe to excel in dry port management?
- f. What does a comprehensive literature review educate us on dry ports management?

## LITERATURE REVIEW

### Conceptual Framework

#### *The dry port concept*

Many scholars have defined the term "dry port," and the definitions show a broad understanding of the subject from various angles. It's worth noting that the definitions are based on the physical structure, function, and purpose of the institution. The criteria also arose from the fact that the periodic sharp increase in container throughput caused in overcrowding, congestion, and extended container dwell times (Roso et al., 2019). Trans-ocean vessels began to call at a single hub port as a solution to the challenges at the main sea ports, while feeder vessels, haulages, trucks, and trains connected to a number of smaller inland or dry ports.

"An inland intermodal terminal immediately linked to seaport(s) with high capacity transport methods, where clients can drop or pick up their standardized unit as if directly as a seaport," according to Khaslavskaya and Roso (2020) This definition takes into account the fact that a dry port not only performs the traditional role of inland terminals in terms of transshipment, but also provides additional services such as consolidation, storage (both cargo and empty containers), container maintenance and repair, and customs clearance.

Distribution, consolidation, storage, customs services, and potentially equipment maintenance are all functions of a dry port. A dry port is defined as a common user facility with public authority status, equipped with fixed installations and offering services for handling and temporary storage of any kind of goods (including containers) carried under customs transit by any applicable mode of transport, placed under customs control, and with customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit, and outright export (Hui et al., 2019). This definition, while wide, is close to one that considers the value-added role of dry port.

A dry port is a governmental authority-owned facility with fixed facilities that enables temporary storage of products and containers, as well as customs processing. Dry ports, according to Jeevan et al. (2019), are located away from traditional borders but with access to major metropolitan centers, motorways, and labor bases. The following fundamental concepts are essential for properly understanding and interpreting the phrase "dry port."

- **Containerization:** is one of the three words that provide knowledge of the dry port's structure and function. This is due to the fact that dry ports are involved in both marine and domestic container handling, as well as other intermodal operations like swap bodies, consolidation, trans-loading deconsolidation, and small-scale manufacturing.



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- **Dedicated Link:** A high-capacity corridor must be connected to a dry port. Rail and barge are the most common linkages, although haulages and trucks can also be employed.
- **Massification:** A dry port must provide economies of scale in the distribution process, which means lower prices and faster delivery. Large quantities must be handled at the lowest possible unit cost and in the shortest possible time to have a beneficial influence on the supply chain network.

However, there is a distinction to be made between a dry port and an inland container depot. An inland container depot exclusively handles containerized goods, whereas a dry port handles a variety of cargo types in addition to the other services stated. Gateway(Sea) Terminals, Rail Terminals, and Distribution Centres are three types of dry ports described by Jeevan et al. (2019). For starters, a sea port serves as a link between inland and maritime freight delivery. In addition to transportation and storage, the rail terminal acts as a link to gateway terminals, while the third category (distribution centre) as it is known in Europe undertakes numerous value-added tasks such as sorting, debulking, labeling, grading, and inventory control.

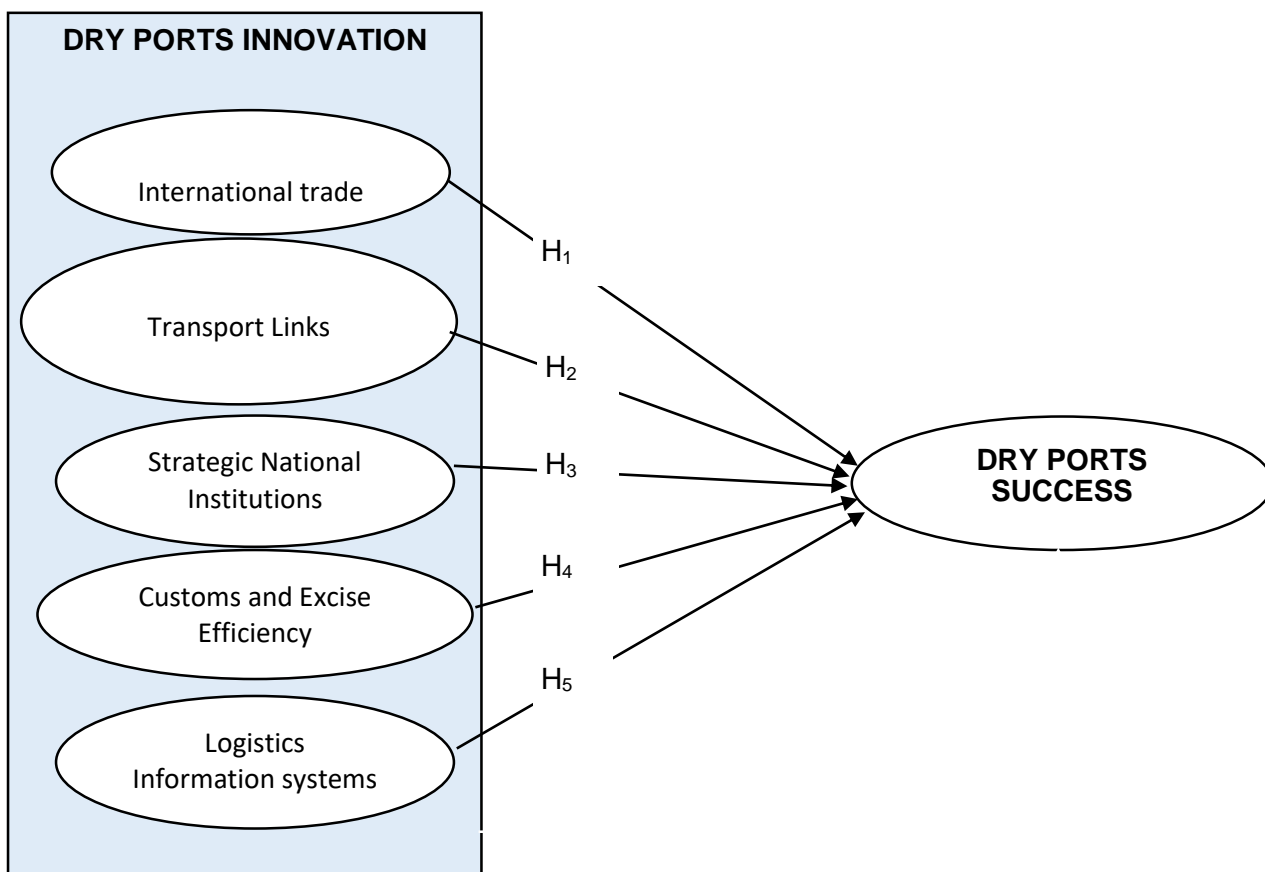


Figure 2: Conceptual framework

Research hypotheses for the study are as follows:

- H<sub>1</sub>: International trade positively influences the success of dry ports
- H<sub>2</sub>: Transport links have a positive effect on the success of dry ports
- H<sub>3</sub>: Strategic national institutions have a positive effect on the success of dry ports
- H<sub>4</sub>: Customs and excise efficiency impacts positively on the success of dry ports
- H<sub>5</sub>: Logistics information systems have a positive impact on the success of dry ports

### THEORETICAL FRAMEWORK

Two theories guide this research and these are the theory of market orientation and the accelerator theory of investment (Tokarczyk et al. (2007) as they apply to dry ports. Market orientation is a company philosophy focused on discovering and meeting the needs and desires of a company's customers through its products mix, and in this instance, dry port businesses will be expected to meet foremost the needs of their diverse portfolio of customers directly, then the needs society and the dictates of corporate social responsibility and sustainable business.

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### **Transport links**

A transportation route is the path that a movement of people or products takes on a regular basis (Wang et al., 2020). By increasing air quality and reducing oil consumption, as well as through better land-use rules, public transportation contributes to a healthier environment. It also aids in the expansion of company and employment prospects. It's also crucial in emergency scenarios that necessitate a quick and safe evacuation.

People, businesses, the environment, and the broader economy all benefit from good transportation connections Jeevan et al. (2019). Good transportation, for example, can: Make it easier for people to find work. Good transportation linkages can assist people find work by expanding their job search region.

### **Customs and excise department efficiency**

The Department of Revenue and Customs' customs and excise division is one of four divisions responsible for the entire administration of indirect taxes, including the collection of taxes on traded goods and the facilitation of international trade. The Customs and Excise Act imposes Customs Duty on imported goods, whereas the Excise Tariff imposes Excise Duty on some locally manufactured items and other imported commodities that fall under the Excise Tariff, even if they are entered under Trade Agreements (Lakhmetkina et al., 2019).. The Customs Tariff Handbook, which is published as a statutory instrument, specifies the applicable rates of Customs and Excise Duties.

### **Logistics information systems**

Abdoulkarim et al. (2019) define a logistics management information system as a collection of records and reports – paper-based or electronic – that are used to aggregate, analyse, validate, and display data (from all levels of the logistics system) that may be used to make logistics decisions and manage the supply chain.

To organize, regulate, and measure logistical processes, a logistical information system is a component of a management information system (Nguyen & Notteboom (2019). It connects to marketing, financial, and production data systems and delivers data to top management to aid in the formulation of strategic decisions for the entire company.

In logistics management, the primary purpose of an information system is to establish successful links between suppliers, consumers, and rivals. The mode of making these linkages might be offensive or defensive, depending on the logistics management strategy (Wu et al., 2017).

### **Drivers for dry port development**

The growth of dry ports is influenced by the following variables and trends in shipping and transportation operations.

#### ***Seaports and global terminal operators***

The major motivator for dry port development is capacity constraints at seaports. Rapid commerce growth causes port incapacitations (Lakhmetkina et al., 2019). Furthermore, truck congestion causes port inefficiencies. As a result, seaports are forced to relocate some port services to inland dry ports. Furthermore, the development capacity of seaports is limited by their closeness to sensitive shoreline industries such as tourism, aquaculture, and urban regions. Furthermore, the private sector, mostly global terminal operators with inland logistics interests, manages contemporary ports and railway projects.

#### ***Containerisation and standardisation***

Containerization, which began in 1957, led to the standardization of cargo transport units for inland multimodal transit (Hervás-Peralta et al., 2019). Seaborne freight was unitized and containerized, resulting in greater cargo handling efficiency. Dry port expansion was aided by containerisation, and door-to-door delivery services grew rapidly.

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### ***Government Initiatives***

Efforts by the government to increase marine access may lead to the construction of dry port projects (Wu et al., 2017). The goal to reduce transportation costs and enhance overland logistics and supply chain efficiency is the most critical motivation for LLDCs (Murebwa et al., 2023). As a result, governments that invest in dry ports get both economic and social advantages, as dry ports boost commerce while also creating jobs.

Abdoulkarim et al. (2019) looked at dry ports and came to the conclusion that governments play a significant role in developing policy and regulatory measures to help dry port development. Government engagement promotes regional integration and harmonization of policies such as customs processes and border agency cooperation, according to studies by Nguyen and Notteboom (2019). Governments are working to develop sustainable transportation solutions that will lower their carbon footprint in order to combat climate change. Dry ports are a good development that not only enhances marine access but also helps governments accomplish their environmental goals since they facilitate transshipment from road to rail.

### ***International trade***

Demand for marine transportation has risen in response to the significant development in international commerce demand from both regional and worldwide shippers (Vega-Muñoz et al., 2021). As a result, seaports have responded by investing in dry ports to address capacity issues and maintain control over the supply chain. In context, Zimbabwe is a developing country with an agricultural economy and substantial natural resources that are now sold in semi-processed form to importing countries. The demand for seaborne trade is boosted by these cargoes. Similarly, containerized freight traffic is increasing significantly.

### ***Road congestion***

Road transit dominates freight transport to seaports in southern Africa. This is mostly due to trucks' ability to handle intermodal transport components. Furthermore, road transport has the capability of providing door-to-door delivery (Wang et al., 2020). In coastal cities and in corridors, however, automobile transit causes severe congestion, noise, and pollutants. The goal of dry ports is to reduce congestion.

### ***Environmental Concerns***

Pollutants such as carbon dioxide, nitrogen oxide, and other hydrocarbons have severe environmental consequences. This is hazardous to peoples, animals, and environmental health. Road transit emits five times as much pollution than rail transport. The result is that rail travel is at least three times more efficient than road transport, making it a more energy efficient and ecologically benign means of transportation (Jeevan et al., 2019).

### ***Globalisation of supply chains***

Seaports have been turned into value-added logistics hubs as supply networks have become more global (Oruezabala & Balima, 2021). The port and shipping sectors have been reshaped by deregulation, logistical integration, and containerization. Value addition has boosted demand for marine transportation (Denhere et al., 2023), and modern ports are drawing demand from their surrounding areas by providing value-added services to shippers. The construction of dry ports in the hinterland areas has been prompted by the flood of activity around the port.

## **RESEARCH METHODOLOGY**

The research methodology looked at the design of the questionnaire measures, sampling technique and methods as well as data collection methods. A structured questionnaire with Likert-type questions was used to collect quantitative data from academics and government officers. As for qualitative data collection, interviews were conducted with industrialists. The pragmatic paradigm was employed in the study. It has often been observed in the literature that no single paradigm is superior or better than any other methodology (Benbaset et al. 2014). With this approach, the study has the freedom to choose any method, procedure, and technique. Pragmatism uses both quantitative and qualitative approaches as they are not committed to one system of philosophy and reality. This study used the descripto-explanatory research design. According to Saunders et al (2009), the descripto-explanatory study is a combination of descriptive research design and explanatory research study. The Descripto-explanatory study adopted refers to "a study whose purpose is both descriptive and explanatory where, usually, description is the precursor to explanation" (Saunders et al, 2009; p 591).

The study offers a description of the dry port operations in Zimbabwe. However, to test the framework that augments dry port operations, there is a need for explanatory designs in explaining the cause-and-effect associations, impact, and directions of the relationship/s between dry port operations in Zimbabwe.

# The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines

## Target population and sampling

### Sampling

Clustering was used for comparative purposes. Guided by Krejcie and Morgan (1970), at 95% confidence level and 5% margin of error, a minimum sample size of 120 for the survey was collected as well as 9 face to face interviews. The study used both primary (interviews, participant observation, and questionnaires) and secondary data sources. The participants were chosen using data provided in Zimbabwe.

### The design of research instruments

The structured questionnaire was used to collect quantitative data comprised 5 sections that focused on digging information pertaining to the status of dry ports in Zimbabwe, international trade links, transport links in Zimbabwe, customs and excise efficiency, and logistics information systems. Several items were developed under each section and these were measured using Likert scale-type questions that ranged from 1 (Strongly disagree) to 5 (Strongly agree). All items were borrowed from previous related studies and were modified to suit the current study. The interview guide was made of questions meant to gather data from industrialists in Zimbabwe as regards the innovation of new dry ports in Zimbabwe: The Critical Success factors and fault lines.

### Sampling and data collection

The targeted population comprised academics, industrialists and government officers in Harare, Zimbabwe. These were selected to participate in the study due to their knowledge and experience of the dry ports situation in Zimbabwe. A cross-sectional survey of 120 academics and government officers was undertaken to gather quantitative data. Also, 9 interviews were conducted with government officers to further understand the subject matter. Questionnaires were distributed to the targeted populations through physical distributions to those premises that were accessible. As for the inaccessible premises, the researcher reached the respondents through the online questionnaires. The same with interviews, participants were interviewed face to face and some were interviewed online.

Out of the 120 questionnaires distributed to respondents, 110 were returned and usable. As for interviews, the saturation point was reached at the 9<sup>th</sup> participant of which it was no longer necessary to continue with the exercise. The sample profile for respondents who participated in the quantitative study is represented in Table 1.

**Table 1: Sample Profile for Respondents**

Characteristic		Frequency	Percent (%)
Gender	Male	70	64
	Female	40	36
Age	Below 25 years	5	4.5
	25-34	55	50
	35-44	37	34
	45-50	8	7
	51+	5	4.5
Level of education	Below diploma	13	12
	Diploma	30	27
	First degree	49	45
	Master's	10	9
	Doctoral	4	3.5
	Other	4	3.5
Work experience	1 - 5 years	29	26
	6-10 years	37	34
	11-15 years	27	25
	Over 15 years	17	15

The majority of respondents that participated in the study were male (64%) with the remainder made up of females (36%). The age group that dominated the study was 25 to 34 years (50%). As of educational level for respondents, first degree holders were the majority (45%). Most of the respondents had work experience that range from 6 to 10 years.

### Analysis and results

Preliminary tests such as scale validation that included reliability and validity tests were conducted before research hypotheses test was conducted. As for qualitative part of the study, trustworthiness was taken into considerations and this included activities

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like credibility, transferability, conformability and dependability. The results from preliminary tests confirmed positive results that warranted hypotheses tests to be conducted. Thus, the scale was valid and results from the Cronbach's alpha test indicated results above 0.7 as recommended by Bagozzi and Yi (1988).

### Hypotheses test results

The researchers tested research hypotheses using the structural equation modeling in AMOS 21. The hypotheses tested were:

H1: International trade positively influences the success of dry ports

H2: Transport links have a positive effect on the success of dry ports

H3: Strategic national institutions have a positive effect on the success of dry ports

H4: Customs and excise efficiency impacts positively on the success of dry ports

H5: Logistics information systems have a positive impact on the success of dry ports

The results obtained from the tests are indicated in Table 2 below:

**Table 2: Results of hypotheses testing**

Hypothesis	Hypothesised Relationship	SRW	CR	Remark
H <sub>1</sub>	International trade → Dry Port Success	0.301	8.217***	Supported
H <sub>2</sub>	Transport links → Dry Port Success	0.294	4.626***	Supported
H <sub>3</sub>	Strategic national institutions → Dry Port Success	0.278	5.016***	Supported
H <sub>4</sub>	Customs and excise efficiency → Dry Port Success	0.412	9.004***	Supported
H <sub>5</sub>	Logistics information systems → Dry Port Success	0.496	9.345***	Supported

Notes: SRW standardized regression weight, CR critical ratio, \*\*\* significant at  $p < 0.001$ ,

Results shown in Table 2 indicate that international trade influences the success of dry ports. Thus, H<sub>1</sub> was supported. Also, the results show that transport links have a positive influence on the success of dry ports, hence supporting H<sub>2</sub>. H<sub>3</sub> was supported, meaning to say that strategic national institutions positively impact on the performance of dry port success. Customs and excise efficiency were found to have a positive influence on the success of dry ports. Accordingly H<sub>4</sub> was supported. Finally, logistics information systems were found to influence the success of dry ports, hence the research hypothesis was supported.

### Findings from interviews

Major themes that came up from qualitative data analysis included decreased exports in Zimbabwe. Thus, participants highlighted that the country was experiencing low exports and imports hence defeating the need for dry port success. Also, most participants noted the inefficiency of some clearance agents which they said contributed to the failure of dry ports. Slow clearance of goods on most border posts was also noted as one of the factors that affect dry ports' success. A bad transport system within the country was said to be hampering the dry ports' success. Most roads were said to be in a bad state which hardly allows swift movement of cargo. Some participants acknowledged abundant resources in Zimbabwe, but the problem was cited as failure to put the resources into proper use to allow dry ports innovation. Some of the items raised from the interviews conducted include; little involvement of stakeholders in matters to do with dry ports, lack of cooperation between the Zimbabwean government and stakeholders, poor infrastructure like rail and roads, few trade partners for the country that buy products being produced by the country.

### Theoretical implication

Few studies have focused on the effect of innovation on the development and success new dry ports in Zimbabwe. The current study was carried out to close this gap. Therefore, the current study sought to contribute to the logistics and supply chain management body of knowledge by examining the role played by innovation in the development and success of the dry ports.

The study established that all the sub variables; logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade influences have a positive influence on the development and success of dry ports. This implies that dry ports are likely to be successful more support is given in the form of improved logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade activities. This finding proffer significant contribution to the logistics and supply chain management body of knowledge as there are few studies that have focussed on the improvement of dry ports business paying particular attention to logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade influences. Also, findings of the study confirm extant literature that the success of dry ports require the support and initiation by relevant authorities (Hervás-Peralta et

## The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines

al., 2019; hmetkina et al., 2019; Jeevan et al., 2019; Lakhmetkina et al., 2019; Nguyen & Notteboom, 2019;Notteboom, 2019; Vega-Muñoz et al., 2021; Wang et al., 2020).

### Practical implications

It is imperative for the government of Zimbabwe to understand activities that affect the establishment of a successful dry port. The government and relevant stakeholders are advised to improve international trade links with more global markets as this may influence the promotion of dry ports. It is also necessary to ensure the availability of good transport link as this positively impacts on the promotion of dry ports. The government needs to spearhead the implementation of strategic national institutions that will support dry ports establishment in Zimbabwe. The Department of Customs and Excise must be efficient in the way it deals with customers since this influences the performance of dry ports. This also attracts more customers to do business with the country and results in the establishment and success of dry ports. Logistics information systems need upgrading to regional and global standards as this has a positive impact on the success of dry ports.

### Implications for future research

The sample size was limited to respondents and participants in Zimbabwe only. Future studies could be improved for foreigners doing business with Zimbabwe as they may provide useful information that may help the establishment and success of dry ports in Zimbabwe.

### REFERENCES

- 1) Abdoukarim, H. T., Fatouma, S. H., & Munyao, E. M. (2019). Dry Ports in China and West Africa: A Comparative Study. *American Journal of Industrial and Business Management*, 9(03), 448.
- 2) Bagozzi, R.P. & Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- 3) Chikazhe, L. Bhebhe, TB. Tukuta, M. Chifamba, O. & Nyagadza, B. (2023). Procurement Practices, Leadership Style and Employee Perceived Service Quality towards the Perceived Public Health Sector Performance in Zimbabwe. *Cogent Social Sciences*,
- 4) Chikwere D., Chikazhe L. & Tukuta M. (2022). The influence of public procurement practices on service delivery: Insights from Zimbabwe's Rural District Councils. *Journal of Tianjin University Science and Technology* 55(9), pp.30-45. <https://doi.org/10.17605/OSF.IO/RJC4Q>
- 5) Chikwere, D., Chikazhe, L., & Tukuta, M. (2023). Value for money in public procurement: Experience from Zimbabwe's rural district councils. *Cogent Social Sciences*, 9(2), 2244746. <https://doi.org/10.1080/23311886.2023.2244746>
- 6) Chingarande, D., Mugano, G., Chagwiza, G., & Hungwe, M. (2020). Zimbabwe Market Study: Masvingo Province Report.
- 7) Denhere, T. E., Chikazhe, L. & Kanyepe, J. (2023). Supplier Relationship Management, Information Communication Technology and Organisational Performance of the Packaging Industry in Harare, Zimbabwe. *Fifth Chinhoyi University of Technology International Conference, Zimbabwe*. Pg. 109.
- 8) Friedman, L. T., & Mandelbaum, M. (2011). *That used to be us: how America fell behind in the*
- 9) Gichuhi, I. (2021). *Effect of dry port operational factors on trade facilitation in Kenya* (Doctoral dissertation, Moi University).
- 10) Gualandris, J. and Kalchschmidt, M. (2015). Supply risk management and competitive advantage: a misfit model: The International Journal of Logistics Management, Vol. 26(3), 459 – 478.
- 11) Hervás-Peralta, M., Poveda-Reyes, S., Molero, G. D., Santarremigia, F. E., & Pastor-Ferrando, J. P. (2019). Improving the performance of dry and maritime ports by increasing knowledge about the most relevant functionalities of the Terminal Operating System (TOS). *Sustainability*, 11(6), 1648.
- 12) Hui, F. K. P., Aye, L., & Duffield, C. F. (2019). Engaging employees with good sustainability: key performance indicators for dry ports. *Sustainability*, 11(10), 2967.
- 13) Jeevan, J., Bandara, Y. M., Mohd Salleh, N. H., Ngah, A. H., & Hanafiah, R. (2019). A Procedure of Implementing Exploratory Mixed Method Research in Dry Ports Management. *Transactions on Maritime Science*, 8(02), 157-170.
- 14) Jeevan, J., Chen, S. L., & Cahoon, S. (2019). The impact of dry port operations on container seaports competitiveness. *Maritime Policy & Management*, 46(1), 4-23.
- 15) Khaslavskaya, A., & Roso, V. (2019). Outcome-driven supply chain perspective on dry ports. *Sustainability*, 11(5), 1492.
- 16) Khaslavskaya, A., & Roso, V. (2020). Dry ports: research outcomes, trends, and future implications. *Maritime Economics & Logistics*, 1-28.
- 17) Lakhmetkina, N., Poliak, M., & Oleinikov, A. (2019). Infrastructure development of international importance for the modern transport system. *Archiwum Motoryzacji*, 84(2).
- 18) MIT Press.

## The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines

- 19) Mokuu, B. (2020). *Determinants of dry port performance in Kenya: A case of the internal container depot, Nairobi* (Doctoral dissertation, Moi University).
- 20) Murebwa, S., Mbizi R. & Chikazhe, L. (2023). Entrepreneurial behaviour and performance of Utility parastatals: Implications for Re-industrialisation and SDGs. *Fifth Chinhoyi University of Technology International Conference, Zimbabwe*.
- 21) Nguyen, L. C., & Notteboom, T. (2019). The relations between dry port characteristics and regional port-hinterland settings: findings for a global sample of dry ports. *Maritime Policy & Management*, 46(1), 24-42.
- 22) Oruezabala, G., & Balima, R. (2021). Highlighting Performance Indicators for Dry Ports in Landlocked Countries: The Case of Burkina Faso. In *Doing Business in Africa* (pp. 145-162). Palgrave Macmillan, Cham.
- 23) Roso, V., Russell, D., & Rhoades, D. (2019). Diffusion of innovation assessment of adoption of the dry port concept. *Transactions on Maritime Science*, 8(01), 26-36.
- 24) Saha, R. C. Dry port facilities in the selected land ports of Bangladesh to promote intermodal freight transport in South Asia.
- 25) Shah, D. (2015). Ten challenges for future leaders in procurement. Retrieved from <http://www.procurementleaders.com/blog/my-blog--guest-blog/ten-challenges-for-future-leaders-in-procurement-528642>
- 26) Sheffi, Y. (2014). *Logistics clusters, delivering value and driving growth. Massachusetts: The world it invented and how we can come back*: Picador. New York.
- 27) Srivastava, S.K., Chaudhuri, A. and Srivastava, R.K. (2015). Propagation of risks and their impact on performance in fresh food retail: The International Journal of Logistics Management, Vol. 26(3), 568-602.
- 28) Tokarczyk, J., Hansen, E., Green, M., & Down, J. (2007). A resource-based view and market orientation theory examination of the role of "familiness" in family business success. *Family Business Review*, 20(1), 17-31.
- 29) Vega-Muñoz, A., Salazar-Sepulveda, G., Espinosa-Cristia, J. F., & Sanhueza-Vergara, J. (2021). How to measure environmental performance in ports. *Sustainability*, 13(7), 4035.
- 30) Wang, Y., Monios, J., & Zhang, M. (2020). Comparing onsite and offsite rail access for dry port developments—a benchmark study in China. *Research in Transportation Business & Management*, 35, 100471.
- 31) Wu, Q., Zhang, H., & Wang, Y. (2017). Optimal location of dry ports in the Pan-Pearl River Delta. In *MATEC Web of Conferences* (Vol. 124, p. 05001). EDP Sciences.

### APPENDIX A: Instrument used to collect quantitative data

Codes	Status of Dry Ports in Zimbabwe	Source
SDPZ1	Zimbabwe has sufficient warehouses/bonded warehouses	Chingarande et al. (2020), Chikwere et al. (2023)
SDPZ2	The country has functional airports to support dry ports	
SDPZ3	There are good roads to link the country	
SDPZ4	The country has functional railways for transport connectivity	
SDPZ5	Customs and Excise Department is efficient and supports dry ports	
Codes	International Trade	Source
IT1	Tariff and non-tariff costs are favourable	Jeevan et al. (2019), Hui et al. (2019)
IT2	The Zimbabwean Government promotes foreign transactions	
IT3	There are less restrictions on international business	
IT4	Clearing agents in Zimbabwe are efficient	
Codes	Transport Links	Source
TLZ1	Zimbabwe enjoys various transport modes	Khaslavskaya and Roso (2020), Chikazhe et al. (2023)
TLZ2	The infrastructure in Zimbabwe promotes transport links	
TLZ3	Transport network in Zimbabwe promotes trade	
TLZ4	There is smooth flow within the transport system in Zimbabwe	
TLZ5		
Codes	Customs and Excise Efficiency	Source
CEE1	Taxes imposed on exported goods in Zimbabwe are reasonable	Chikwere et al. (2022), Roso et al. (2019)
CEE2	Taxes imposed on imported goods in Zimbabwe are reasonable	
CEE3	This department prevents conflicts and disputes between trade partners	
CEE4	Control bonded warehouses	
CEE5	Supervise trade to ensure that no duty is charged and collected on goods destined to another country.	
Codes	Logistics Information systems (LIS)	Source
LIS1	Zimbabwe use LIS to improve routing and delivery schedules	Hui et al. (2019)

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LIS2	Zimbabwe use LIS to select the best modes of transportation	
LIS3	Zimbabwe use LIS to improve transportation budgeting	
LIS4	Zimbabwe use LIS for order processing	
LIS5	Zimbabwe use LIS for connecting suppliers and consumers	

### APPENDIX B: INTERVIEW GUIDE

#### INTERVIEW QUESTIONS

- 1) Do you think that the volumes of imports and exports in Zimbabwe have increased to warrant dry port establishment?
- 2) Does the time taken to clear goods significantly warrant dry ports to an extent of attracting importers and exporters?
- 3) Does Zimbabwe have good transport system that supports dry ports establishment?
- 4) How do you rate the available resources and involvement of senior management towards the support dry ports establishment?
- 5) Are there adequate resources and involvement of senior management to address the operational challenges affecting dry ports establishment?
- 6) There is cooperation between different stakeholders in Zimbabwe such as importers, customs staff, clearing agents. Do you agree to this?
- 7) Various Government agencies are anxious about embracing dry ports in Zimbabwe. What is your opinion?
- 8) The personnel are sufficient to match the level of commitment required for dry ports management within the SADC region and beyond. What's your take?
- 9) What could be the major cause of dry ports establishment failure in Zimbabwe?



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## Physical Activity and Physical Fitness as Predictors of Students' Physical Education Learning Achievement



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**ABSTRACT:** This study aims to analyze the relationship between physical activity and physical fitness with students' Physical Education learning achievement both partially and simultaneously. This type of research is quantitative with a correlational approach. The population in the study were junior high school students in Yogyakarta, totaling 125 students. The physical activity instrument is The Physical Activity Questionnaire for Adolescent (PAQ-A) which has been modified. Physical fitness level was measured using the Indonesian Physical Fitness Test for children aged 13-15 years. Learning achievement is based on report card scores. The data analysis technique used is a prerequisite test consisting of normality test, linearity test, while the hypothesis test uses partial and simultaneous tests. The results showed that (1) There is a significant relationship between physical activity and students' Physical Education learning achievement. (2) There is a significant relationship between physical fitness and Physical Education learning achievement of class students. (3) There is a significant relationship between physical activity and physical fitness with students' physical education learning achievement.

**KEYWORDS:** Physical Activity, Physical Fitness, Physical Education Learning Achievement

### INTRODUCTION

Physical Education is an integral part of overall education that has the aim to develop aspects of movement skills, aspects of physical fitness, aspects of healthy lifestyles, aspects of social skills, aspects of critical thinking skills, aspects of emotional stability, aspects of reasoning, aspects of moral action, and aspects of clean environment recognition. Physical Education is useful for students in providing opportunities to engage in sports directly, thus creating new experiences that are more useful for students (Chu & Zhang, 2018). Physical Education aims to develop learners' motivation to exercise and physical activity in fulfilling basic psychological needs (Fin et al., 2017). Moreover, it can be useful for other education including the development of social skills, self-confidence, and behavioral perseverance. The end result of learning is expressed in the form of learning achievement scores.

Learner learning outcomes are essentially changes in behavior. Behavior as a result of learning in a broad sense includes cognitive, affective, and psychomotor fields. Learning achievement can be influenced by psychological, economic, social, individual, and environmental factors. Individuals in this case are physically and mentally healthy. Physical activity is any body movement produced by skeletal muscles that requires energy expenditure. Physical activity includes any motor behavior in daily and recreational activities. Structured physical activity can increase blood flow to the brain so that nutrients and oxygen can be channeled properly (Houdebine et al., 2017). Lack of oxygen to the brain results in disorientation, fatigue, impaired concentration, confusion, and memory problems. Good physical activity results in not reaching a state of homeostasis, a balance of nutrients and brain chemicals that allows the brain to be ready to analyze and learn (Stern et al., 2019).

Physical fitness is a very important potential in supporting daily activities without feeling excessive fatigue and even being able to do activities afterwards. Through physical activities that are directed and carried out continuously, it will produce the impact of physical fitness and health (Singh & Bhatti, 2020). Physical fitness is the result of the work of the body system functions that realize the improvement of the quality of life in every activity that involves physical. If a person's physical fitness is low, it will be very easy to fatigue, thus not maximizing brain function in thinking. Physical fitness in learning activities plays an important role, if the physical fitness of students is not good, it will have an impact on their learning activities which in turn will affect their learning outcomes (Tucker et al., 2017). Students who have poor physical fitness will experience difficulties in their learning activities (Gu et al., 2016). If physical fitness is well maintained, then the learning process carried out will be maximized, from a good learning process will produce brilliant academic achievement.

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Results of the study (Han, 2018) indicates that intense physical activity promotes brain changes seen with increased oxygenation and tissue, as well as increased metabolic activity and provides improved neurological development. The cycle indicates that physical activity is a determining factor in academic achievement. The study was conducted by (Gil-Espinosa et al., 2020) which examined physical fitness and its relationship with academic achievement. The results showed that cardiorespiratory fitness, muscle strength and flexibility were positively associated with academic achievement, except muscle strength, which was not significantly associated with Spanish or math. Overall, cardiorespiratory fitness was positively associated with intelligence and academic achievement. Study conducted (Han, 2018) found that students with good physical fitness levels tend to have good average scores in subjects with higher levels of complexity such as English, math, and science. In accordance with the formulation of the problem above, the aim to be achieved in this study is to determine the relationship between physical activity and physical fitness with students' physical education learning achievement.

## METHOD

This type of research is descriptive quantitative with a correlational approach. Correlation research is research that aims to find whether or not there is a relationship and if so, how close the relationship is, and whether or not the relationship is meaningful. The population in the study was junior high school students in Yogyakarta, totaling 125 students. The physical activity instrument is The Physical Activity Questionnaire for Adolescent (PAQ-A) which has been modified. Physical fitness level was measured using the Indonesian Physical Fitness Test for children aged 13-15 years. Learning achievement is based on report card scores. The data analysis technique used is a prerequisite test consisting of normality test, linearity test, while the hypothesis test uses partial and simultaneous tests. The analysis was conducted using SPSS 23.0 for windows.

## RESULTS

The results of descriptive analysis are aimed at knowing physical activity, physical fitness, and physical education learning achievement. Descriptive statistical results based on mean and standard deviation in Table 1.

**Table 1. Descriptive Statistics**

No.	Variables	Statistics
1	Physical Activities	2.03 ± 0.63
2	Physical fitness	12.98 ± 1.84
3	Physical Education learning achievement	77.86 ± 4.00

The data normality test in this study used the Kolmogorov-Smirnov method. The results of the data normality test carried out on each analysis group were carried out with the SPSS version 23.0 for windows software program with a significance level of 5% or 0.05. The data summary is presented in Table 2.

**Table 2. Normality Test Results**

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		125
Normal Parameters <sup>a</sup>	Mean	0.000000
	Std. Deviation	2.79721049
Most Extreme Differences	Absolute	0.083
	Positive	0.083
	Negative	-0.037
Kolmogorov-Smirnov Z		0.929
Asymp. Sig. (2-tailed)		0.354
a. Test distribution is Normal.		

Based on the statistical analysis of the normality test that has been carried out using the Kolmogorov-Smirnov test in Table 2, the variables of physical activity, physical fitness, and Physical Education learning achievement obtained normality test results with p-value > 0.05, which means that the data is normally distributed..

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Testing the linearity of the relationship is done through the F test. The relationship between the independent variable (X) and the dependent variable (Y) is declared linear if the p-value > 0.05. The results of the linearity test can be seen in Table 3.

**Table 3. Linearity Test Results**

No.	Functional Relationship	p	Sig.	Description
1	Physical activity * Physical Education learning achievement	0.375	0.05	Linear
2	Physical fitness * Physical Education learning achievement	0.115	0.05	Linear

Based on the results of the analysis in Table 3 above, it can be seen that the relationship between physical activity and Physical Education learning achievement obtained a p-value of  $0.375 > 0.05$  and the relationship between physical fitness and Physical Education learning achievement obtained a p-value of  $0.115 > 0.05$  is declared linear..

Regression analysis is a statistical technique useful for examining and modeling the relationship between variables. The results of multiple linear analysis of the relationship between physical activity and physical fitness of students are presented in table 4 as follows:

**Table 4. Multiple Linear Regression Analysis Results**

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	63.199	1.865	
	Physical activity (X <sub>1</sub> )	3.040	0.529	0.481
	Physical fitness (X <sub>2</sub> )	0.653	0.182	0.300

Based on table 4 above, the multiple linear regression equation resulting from this study can be determined as follows:

$$\text{Physical Education Learning Achievement (Y)} = 63.199 + 3.040 \text{ Physical activity (X}_1\text{)} + 0.653 \text{ Physical fitness (X}_2\text{)}$$

Based on the results of the multiple linear equation above, it can be interpreted as follows:

The constant is 63,199 which means that if the physical activity and physical fitness variables are considered zero, then the Physical Education learning achievement variable is only 63,199. The regression coefficient of the physical activity variable obtained a value of 3.040 which means that if the physical activity variable increases, while the physical fitness variable is assumed to be fixed, then the Physical Education learning achievement will increase by 3.040. The regression coefficient of the physical fitness variable obtained a value of 0.653, which means that if the physical fitness variable increases, while the physical activity and sleep quality variables are assumed to be fixed, then Physical Education learning achievement will increase by 0.653. Furthermore, hypothesis analysis was carried out, namely partial tests and simultaneous tests. The t test (partial) was conducted to determine the effect of each independent variable, namely physical activity and physical fitness on Physical Education learning achievement. The results of the t test (partial) analysis are presented in Table 5 as follows.

**Table 5. Partial Test Analysis Results (t test)**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	63.199	1.865		33.888	.000
	Physical activity	3.040	.529	.481	5.749	.000
	Physical fitness	.653	.182	.300	3.586	.000

a. Dependent Variable: Prestasi belajar Pendidikan Jasmani

The physical activity variable obtained a p-value of 0.000. Because the p-value of  $0.000 < 0.05$ , then H<sub>0</sub> is rejected, meaning that H<sub>1</sub> which reads "There is a significant relationship between physical activity and Physical Education learning achievement" is accepted. The value is positive, meaning that if physical activity is getting better, then Physical Education learning achievement will also be better.

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Physical fitness variable obtained p-value 0.000. Because the p-value of  $0.000 < 0.05$ , then  $H_0$  is rejected, meaning that  $H_2$  which reads "There is a significant relationship between physical fitness and Physical Education learning achievement" is accepted. The value is positive, meaning that if physical fitness is getting better, then Physical Education learning achievement will also get better.

The F test is used to test the hypothesis whether the independent variables together (simultaneously) affect the dependent variable.  $H_3$  reads "There is a significant influence between physical activity and physical fitness on Physical Education learning achievement". The results of the analysis in Table 6.

**Table 6. F Test Analysis Results (Simultaneous)**

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1014.184	2	507.092	63.764	.000 <sup>a</sup>
	Residual	970.224	122	7.953		
	Total	1984.408	124			
a. Predictors: (Constant). Physical fitness. Physical activity						
b. Dependent Variable: Physical Education learning achievement						

Based on Table 6 above, the calculated F coefficient is 63.764 and the p-value is  $0.000 < 0.05$ , then  $H_0$  is rejected, meaning. The alternative hypothesis which reads "There is a significant relationship between physical activity and physical fitness on Physical Education learning achievement", is accepted. It can be concluded that the regression model chosen is suitable for testing data and the regression model can be used to predict that physical activity and physical fitness as predictors of students' Physical Education learning achievement.

The Coefficient of Determination is essentially used to measure how far the ability of the regression model to explain the variation in the dependent variable. The analysis results in Table 7 are as follows.

**Table 7. Coefficient of Determination Analysis Results**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.715 <sup>a</sup>	0.511	0.503	2.82005
Predictors: (Constant), physical activity, physical fitness				

The coefficient of determination or physical activity and physical fitness in explaining or predicting the Physical Education learning achievement variable is 0.511 or 51.10%. This means that the physical activity and physical fitness variables have an influence on Physical Education learning achievement of 51.10%, while the rest is influenced by other factors of 48.90% outside this study.

## DISCUSSION

Based on the results of the study, it shows that there is a significant relationship between physical activity and students' Physical Education learning achievement. Physical activity is any body movement produced by the contraction of several muscles that increases energy demand above the resting metabolic rate and is characterized by modality, frequency, intensity, duration, and context of practice. The relationship between physical activity and cognitive domain and academic achievement in children and adolescents due to the neurocognitive effects of physical activity in children and adolescents has important implications for public health and education that can be obtained through Physical Education in the school curriculum (Thivel et al., 2018). In addition to positive effects on physical health, it can also have positive effects such as cognitive, social and emotional domains. Physical Education in schools may have a positive effect on academic achievement. However, schools face increasing challenges in allocating time for sport and physical activity during the school years. Physical activity that is rarely done and results in a low level of physical fitness results in not maximizing the nutrients and oxygen flowing to the brain which results in students not being ready to carry out the teaching and learning process, so that the achievement of learning achievement is not maximized either, because physical activity plays a very important role in supporting the achievement of student learning outcomes (Alvarez-Bueno et al., 2017; Nayak, 2018).

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Structured physical activity can increase blood flow to the brain so that nutrients and oxygen are properly delivered. Lack of oxygen to the brain results in disorientation, fatigue, impaired concentration, confusion, and memory problems. Good physical activity results in not reaching a state of homeostasis, a balance of nutrients and brain chemicals that allows the brain to be ready to analyze and learn (Stern et al., 2019). Separate from its effects on health increased physical activity produces major academic benefits by improving cognition, focus, and memory (Packham & Street, 2019)

Based on the results of the study, it shows that there is a significant relationship between physical fitness and students' Physical Education learning achievement. This is very likely to happen because the level of physical fitness can support a person's performance to move both physically and in the thinking process (McPherson et al., 2018). If a person's physical fitness is low, it will be very easy to fatigue, thus not maximizing brain function in thinking. The level of physical fitness in learning activities plays an important role, if the physical fitness of students is not good, it will have an impact on their learning activities which will ultimately affect their learning outcomes. Learners who have poor physical fitness, will experience difficulties in their learning activities (Gu et al., 2016). If physical fitness is well maintained, the learning process carried out will be maximized, from a good learning process will produce good academic achievement.

Based on the results of the study, it shows that there is a significant relationship between physical activity and physical fitness with Physical Education learning achievement. Physical Education learning achievement results are the value of learning outcomes expressed in the form of symbols, letters, numbers, or sentences that can reflect the learning outcomes that have been achieved by each child in carrying out learning activities at certain periods. Learning outcomes are one measure of the ability of students to understand lessons, especially Physical Education. Academic achievement can be influenced by psychological, economic, social, individual, and environmental factors. Individuals in this case are physically and mentally healthy. These individual factors can also be influenced by health. Physical activity and physical fitness can be a support that can be done daily for good health, so that it can support the running of the education process which will have a good impact on academic achievement.

Physical fitness is a very important potential in supporting daily activities without feeling excessive fatigue and even being able to do activities afterwards. Through physical activities that are directed and carried out continuously, it will produce the impact of physical fitness and health. Intense physical activity and exercise will be directly proportional to the level of physical fitness. In addition, doing activities that involve physical or exercise will affect the physical ability to maximize oxygen processed in the body. If the body has the ability to maximize oxygen consumption and is able to meet good nutrition or nutrition, it will have a significant impact on physical fitness.

### CONCLUSION

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that: (1) There is a significant relationship between physical activity and students' Physical Education learning achievement. (2) There is a significant relationship between physical fitness and students' Physical Education learning achievement. (3) There is a significant relationship between physical activity and physical fitness with students' Physical Education learning achievement. For teachers if they want their students to get good learning achievements, always in providing learning materials to be improved and encourage students to study harder. For further researchers, it is hoped that other independent variables can be added, so that the variables that affect the learning achievement of Physical Education Sports Health can be identified even more and the results can be generalized.

### REFERENCES

- 1) Alvarez-Bueno, C., Pesce, C., Caverro-Redondo, I., Sanchez-Lopez, M., Martínez-Hortelano, J. A., & Martinez-Vizcaino, V. (2017). The effect of physical activity interventions on children's cognition and metacognition: A systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(9), 729–738.
- 2) Chu, T. L., & Zhang, T. (2018). Motivational processes in Sport Education programs among high school students: A systematic review. *European Physical Education Review*, 24(3), 372–394.
- 3) Fin, G., Baretta, E., Moreno-Murcia, J. A., & Nodari Júnior, R. J. (2017). Autonomy support, motivation, satisfaction and physical activity level in physical education class. *Universitas Psychologica*, 16(4), 88–99.
- 4) Gil-Espinosa, F. J., Chillón, P., Fernández-García, J. C., & Cadenas-Sanchez, C. (2020). Association of physical fitness with intelligence and academic achievement in adolescents. *International Journal of Environmental Research and Public Health*, 17(12), 4362.
- 5) Gu, X., Chang, M., & Solmon, M. A. (2016). Physical activity, physical fitness, and health-related quality of life in school-aged children. *Journal of Teaching in Physical Education*, 35(2), 117–126.

## Physical Activity and Physical Fitness as Predictors of Students' Physical Education Learning Achievement

- 6) Han, G.-S. (2018). The relationship between physical fitness and academic achievement among adolescent in South Korea. *Journal of Physical Therapy Science*, 30(4), 605–608.
- 7) Houdebine, L., Gallelli, C. A., Rastelli, M., Sampathkumar, N. K., & Grenier, J. (2017). Effect of physical exercise on brain and lipid metabolism in mouse models of multiple sclerosis. *Chemistry and Physics of Lipids*, 207, 127–134.
- 8) McPherson, A., Mackay, L., Kunkel, J., & Duncan, S. (2018). Physical activity, cognition and academic performance: an analysis of mediating and confounding relationships in primary school children. *BMC Public Health*, 18, 1–9.
- 9) Nayak, J. K. (2018). Relationship among smartphone usage, addiction, academic performance and the moderating role of gender: A study of higher education students in India. *Computers & Education*, 123, 164–173.
- 10) Packham, A., & Street, B. (2019). The effects of physical education on student fitness, achievement, and behavior. *Economics of Education Review*, 72, 1–18.
- 11) Singh, K., & Bhatti, G. K. (2020). Effect of physical exercise training to improve physical fitness in overweight middle-aged women. *International Journal of Scientific Research*, 9(1), 6–9.
- 12) Stern, Y., MacKay-Brandt, A., Lee, S., McKinley, P., McIntyre, K., Razlighi, Q., Agarunov, E., Bartels, M., & Sloan, R. P. (2019). Effect of aerobic exercise on cognition in younger adults: A randomized clinical trial. *Neurology*, 92(9), e905–e916.
- 13) Thivel, D., Tremblay, A., Genin, P. M., Panahi, S., Rivière, D., & Duclos, M. (2018). Physical activity, inactivity, and sedentary behaviors: definitions and implications in occupational health. *Frontiers in Public Health*, 6, 288.
- 14) Tucker, H. J., Bebeley, S. J., & Laggao, S. A. (2017). Children and adolescents' fitness skill level in physical activity: a motivational concern for public health education. *International Journal of Science and Research*, 6(11), 18–22.



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## Analyzing the Situation of Increasing One-Time Social Insurance Withdrawals in Vietnam Policy Recommendations



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**ABSTRACT:** In Vietnam, the situation of employees stopping participating in social insurance and withdrawing one-time social insurance has been an increasing trend in recent years, greatly affecting the implementation of the objectives of the social insurance policy. In this article, using secondary data collection methods and descriptive, comparative and contrasting statistical methods, the author has analyzed the current situation of legal regulations and the increasing situation of withdrawals from One-time social insurance in Vietnam, analyzing the impact factors and challenges posed to employees and the social security system. The authors have proposed several recommendations and policy implications to limit the status of one-time social insurance benefits, towards realizing the goal of expanding social insurance coverage and ensuring income security for employees in their old age.

**KEYWORDS:** one-time social insurance, lump-sum, Vietnam

### 1. INTRODUCTION

In the spirit of Resolution No. 28-NQ/TW of the 12th Central Committee of the Communist Party of Vietnam issued on May 23, 2018, social insurance is identified as a key pillar of the security system social welfare in the socialist-oriented market economy. Accordingly, the goal of increasing the coverage of social insurance and the goal of ensuring old-age income security for the elderly is defined as: in the period to 2025, striving to reach about 45% of the labor force of working age participate in social insurance; about 55% of people after retirement age are entitled to pensions, monthly social insurance and social pension benefits; in the period to 2030, strive to have about 60% of the labor force of working age participate in social insurance, about 60% of people after retirement age are entitled to pension, monthly social insurance and social pension benefits. According to statistics of Vietnam Social Insurance, by the end of 2022, the number of people participating in social insurance will reach over 17 million people (accounting for about 38.07% of the labor force age). On average, each year, the social insurance system develops about 1 million new people participating in social insurance. However, along with that, the number of employees who withdraw one-time social insurance and leave the social insurance system also tends to increase over the years, in the period 2016-2021, on average, more than 700,000 people withdraw their social insurance once a year. In 2016 nearly 625 thousand people were enjoying one-time social insurance, in 2022 it is estimated at 895,500 people. In the whole period 2016-2021, more than 4 million people were withdrawing social insurance once, but only 140,000 people re-enrolled in social insurance (accounting for only 3.5% of people receiving one-time social insurance). The increase in the number of workers leaving the social insurance system is a worrying situation that not only directly affects the interests of employees, but also affects the goal of implementing social security for the people of the country Vietnamese Government.

### 2. THEORETICAL BASIS

In the scope of this study, the author uses the term one-time social insurance with the meaning that one of the benefits of employees under the pension insurance regime for employees when they are not eligible for the monthly pension scheme, in which the beneficiaries of the insurance will be paid a lump-sum allowance after a period of contributing to the social insurance fund, which here is pension fund (Huong, 2022). According to Huong (2022), retirement benefits can be classified into two groups (i) Social insurance retirement plans with pre-determined benefits DB and (ii) Retirement plans with DC-defined contributions (Bodie et al., 1988). Under the DB scheme, retirement benefits are determined by a formula that takes into account the number of years of contributions and the participant's salary or contributions (Harrison and Sharpe, 1983; Exley et al., 1997); DB systems provide fixed benefits based on variable contribution levels. Under the DC scheme, the pension offer varies based on fixed

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contributions; The pension benefit of each participant depends on the amount they have contributed and the profit of the accumulation in the account (Choi et al., 2002). International social security standards according to Convention 102 on Social Security Minimum Rules, 1952 and Convention 128 on Disability, Old Age and Surviving Benefits on Disability, Old Age and Surviving Benefits The year of death, 1967 of the International Labor Organization (ILO) also stipulates the payment of periodic pensions as a form of income security for workers in their old age. These international labor standards do not mention the enjoyment of lump-sum social insurance. One-time social insurance is often applied in DC fixed-rate pension systems. According to the International Social Security Association (ISSA) and the ILO, most of the countries applying the fixed social insurance system with a DB allowance do not allow one-time social insurance benefits before the retirement age (except for living abroad or suffering from a serious illness) to achieve the goal of long-term welfare for workers in line with the increasing trend of population aging; In particular, allowing one-time withdrawal of social insurance for employees who stop paying social insurance after one year is a special case in Vietnam.

### 3. METHODS

The authors use the method of collecting secondary data collected from different sources, focusing mainly on the following documents: (i) Relevant scientific works on one-time social insurance by researchers conducting research at home and abroad; (ii) annual reports on the implementation of social insurance policies by the Vietnam Social Insurance Agency; (iii) legal documents as the basis for the implementation of the lump-sum social insurance regime in Vietnam. At the same time, the authors use the following data analysis methods: (i) Descriptive statistics method for secondary information collected from the annual report of Vietnam Social Security; (ii) Methods of synthesis, analysis and comparison to synthesize and analyze research works related to this study, thereby comparing and selecting valuable findings, closely related to this study. necessary with the topic of one-time social insurance to include in the theoretical basis; (iii) The systematic approach is used in the study to analyze and evaluate the status of the one-time social insurance regime in Vietnam and propose recommendations to improve the regime and limit the increase in one-time social insurance withdrawals.

### 4. RESULTS

#### 4.1. Legal regulations on one-time social insurance in Vietnam

In Vietnam, one-time social insurance is one of the regimes prescribed by the law on social insurance quite early. From 2016 up to now, one-time social insurance has been applied according to the provisions of Article 60, Law on Social Insurance 2014 and Article 1, Resolution No. 93/2015/QH13. Accordingly, the social insurance policy has expressed the view that employees are entitled to reserve the time to pay social insurance premiums to be eligible for pension to ensure their life at the end of working age by the provisions of the Law on Social Insurance 2014 and meet the needs of a part of employees with jobs, unstable incomes, and difficult lives who wish to enjoy the one-time social insurance policy.

##### ***Eligibility conditions and lump-sum social insurance benefits***

An employee may claim to be entitled to a lump-sum social insurance benefit if he/she falls into one of the following cases: (i) Reaches the prescribed retirement age but has not paid social insurance premiums for less than 20 years and does not continue to participate in the social insurance scheme. join voluntary social insurance; (ii) Going abroad to settle down; (iii) Persons suffering from one of the life-threatening diseases such as cancer, polio, ascites cirrhosis, leprosy, severe tuberculosis, HIV infection that has progressed to AIDS and other diseases as prescribed by the Ministry of Health. Medical; (iv) In case the employee participates in compulsory social insurance after one year of leave, the person participating in voluntary social insurance after one year does not continue to pay social insurance but has not yet paid the full 20 years of premium payment. upon request, they are entitled to receive one-time social insurance. The one-time social insurance benefit is calculated according to the number of years of paying social insurance premiums, each year is equal to 1.5 months of the average monthly salary on which social insurance premiums are based for the years of payment before 2014; equal to 02 months of the average monthly salary on which social insurance premiums are based for the years of payment from 2014 onwards. In case the period of payment of social insurance premiums is less than one year, the social insurance allowance shall be equal to the paid amount, and the maximum level is equal to 02 months of the average monthly salary on which social insurance premiums are based.

##### ***Dossiers and procedures for one-time social insurance benefits***

Article 109 of the Law on Social Insurance 2014 stipulates that the dossier for one-time social insurance enjoyment includes the social insurance book, the employee's application for one-time social insurance benefit, and several other papers in case the employee is entitled to a lump-sum social insurance benefit. Going abroad to settle down or people who are suffering from life-threatening diseases such as cancer, polio, cirrhosis of the liver ascites, leprosy, severe tuberculosis, HIV infection that has progressed to AIDS and other diseases according to regulations. regulations of the Ministry of Health. Within 30 days up to the



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time when the employee fully meets the conditions and has a claim to enjoy social insurance once, he/she submits the dossier specified in Article 109 of the Law on Social Insurance to the social insurance agency; within 10 days from the date of receipt of a complete dossier as prescribed, for the case of enjoying lump-sum social insurance, the social insurance agency shall settle and organize payment to the employee; in case of non-settlement, it must reply in writing and clearly state the reason.

### 4.2. The situation of increasing one-time social insurance benefits in Vietnam

Statistics of Vietnam Social Insurance show that the rate of enjoying one-time social insurance benefits tends to increase over the years. In the period 2016-2021, the whole country has had over 4 million people receive one-time social insurance benefits (excluding labor handled by the Ministry of Defense and the Ministry of Public Security), on average, nearly 700,000 people withdraw social insurance once a year with a higher number of subsequent years than the previous year, the average annual growth rate is about 11.6%; The total cost of paying one-time social insurance benefits in this period is VND 131,940 billion. The number of people enjoying one-time social insurance in 2022 is estimated at 895,500 people. Only in the first 6 months of 2023, the Vietnamese social insurance industry has handled over 665,000 people with one-time social insurance withdrawals, or more than 110,000 people per month; Meanwhile, by the end of June 2023, the whole country has 17.48 million people participating in social insurance, an increase of 662 thousand people (about 3.9%) compared to the same period in 2022. In comparison between the number of employees participating in social insurance and the number of people withdrawing one-time social insurance, it can be seen that the number of people applying to leave the social security system is approximately the same as the number of new people entering the social insurance system. In the 2016-2021 period, with about 4.25 million additional employees participating in social insurance, there were also 4.06 million people withdrawing social insurance once (of which, only about 1.2 million people returned to the system and continued to pay social insurance contributions). In the context of a rapidly aging population, forecast to reach 23.3 million (accounting for 20.9% of the population) by 2040, the one-time social insurance withdrawal has increased, making social security coverage increasingly narrow. In the future, there will be millions of employees who reach retirement age who are affected or have no income from pensions, and the state budget will have to pay more social allowances for the elderly who are not retired. This fact shows that, if this trend continues, it will not only cause great difficulties to the achievement of the goal of expanding social insurance coverage but also a challenge for the entire social security system and increase the burden on the state budget.

Vietnamese law allows to receive one-time social insurance for employees who stop paying social insurance after one year, this is a special case in Vietnam. 98.8% of employees who withdraw one-time social insurance are those who stop paying after one year, while the number of people who reach retirement age but have not had enough years to pay, choose to withdraw one-time social insurance accounts for only 0.79%. From 2016 to 2021, out of more than 4 million people who withdraw one-time social insurance, only about 30,000 people who reach retirement age but have not had enough years to pay social insurance contributions are entitled to one-time withdrawal; workers who withdraw one-time social insurance mostly work in enterprises with nearly 2.9 million people (90.7%), followed by the state sector 257,000 people (8%) and workers participating in voluntary social insurance 38,800 people (1.2%). Most of the cases of claims for one-time social insurance are concentrated in the group of young workers; in which male workers with one-time social insurance withdrawals have an average age of 34 years old and female employees with one-time social insurance withdrawals have an average age of 32 years old. On the other hand, female workers receive one-time social insurance more than male workers in all years (about 55% on average). According to Huong (2022), this can be explained by the reason that most young workers pay more attention to immediate needs than the need for retirement pensions when they are old. There is a clearer awareness of the need for a stable income stream in old age, so there are fewer cases of one-time social insurance claims than the younger group of workers. The reasons mentioned to explain the withdrawal of one-time social insurance of female workers in this age group are because they are of childbearing age and have to take time off from work to give birth; As for men, the reason given is that they are at the age where they need to support their families, so when they lose their jobs, they often think of financial sources from withdrawing one-time social insurance contributions. Considering the time of payment of social insurance, those who enjoy one-time social insurance are usually those with a low number of years of payment of social insurance, Male workers who withdraw one-time social insurance have an average payment period of 4.5 years; Female employees who withdraw social insurance once have an average payment period of 4 years. However, statistics on Vietnam Social Security in recent years also show that the number of people who have paid social insurance contributions for more than 10 years and withdraw one-time social insurance premiums tends to increase for both men and women. Around the world, having more than 10 years of contribution is a period that in many countries is considered eligible for retirement when they reach statutory retirement age with a lower benefit. This has also been recommended in international conventions such as: Convention 102 of 1952 and Convention 128 of 1967 specifying a reduced rate of benefit for workers with

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15 or 10 years of contributions or work. This is an issue that needs to be taken care of in order to ensure employees' retirement rights as well as to realize the strategic goal of expanding social insurance coverage towards universal social insurance.

### 4.3. Factors affecting the increase of one-time social insurance benefits in Vietnam

#### *Macro factors*

From a macro perspective, economic context factors, social security models and policies, inflation, the uneven and incomplete development of the labor market, and education are essential factors. considered when studying the causes of the increase in one-time social insurance benefits (Duong, 2021). The global economic crisis and the severe impact of the Covid-19 pandemic have increased the bankruptcy of small and medium-sized enterprises, the number of unemployed workers in the private sector has increased; Besides, a number of enterprises in the state sector and the foreign-invested sector have a tendency to cut labor. Unemployment pushes employees into situations of loss of income, low income not enough to cover their lives, prompting employees to withdraw and enjoy one-time social insurance. The inflation factor has always been one of the important variables in the actuarial models that experts use (Yehuda, 1978; Burda & Wyplosz, 2013). According to Duong (2021), inflation not only directly affects the management and preservation of cash flow, but also affects the stability of the labor market and the psychology of the insured; Inflation is one of the factors that increase the status of one-time social insurance benefits. In the social security systems following the Bismarck model (Vietnam is currently implementing this model), the element of personal responsibility is emphasized, requiring high awareness of members of society and the people. , accompanied by factors of political institutions, economic potential, stability of the macro-economy, and the synchronization of social security policies. However, Vietnam is lacking or weak in many factors to ensure the maintenance of the system, which is the sustainable stability of the macro-economy, the responsibility of commitment from the stakeholders, especially the employee segment. Huong (2022) also commented that the current social insurance policy system is not attractive, not flexible. The design of social insurance policies still has barriers leading to it, so it has not been able to attract a large number of employees to stick with the social insurance system for a long time. According to current Vietnamese law, employees who want to enjoy the retirement regime must have at least 20 years of paying social insurance premiums and ensure their age according to regulations; While the age of the majority of employees when they quit their jobs is young, they cannot wait to pay full 20 years to enjoy the pension scheme. The incomplete and synchronous development of the labor market and labor quality are one of the problems leading to the instability of the labor force in developing countries and emerging economies such as: Vietnam in general, at enterprises in particular. This is a systemic problem and is closely related to the national model of labor management and labor market.

#### *Micro factors*

Considering from a micro perspective, according to Huong (2022), the main factors related to the increasing situation of one-time social insurance withdrawals of employees participating in social insurance in Vietnam are: low income, limited financial capacity is narrow, awareness of social insurance participants about social security and understanding of social insurance is still low and limited in communication and propaganda work. In the context of employment, income and life of a part of employees today, there are still many difficulties; Employees who have lost their jobs face immediate financial needs such as needing money to pay for their families, children's education, debt repayment, and living expenses. Along with that, in fact, a significant part of the labor force in Vietnam is unskilled and unskilled. This part of labor is the subjects with low and precarious income due to the nature of work and are easily unemployed when the economy falls into recession or crisis. This is one of the direct causes leading to employees canceling insurance and enjoying one-time social insurance to make up for the short-term income shortfall (Duong, 2021). Financial difficulties due to low/unstable and unstable income are the factors affecting employees' application for a one-time payment of social insurance after 1 year of not paying social insurance premiums. However, there are also some opinions that, although low income affects the choice of employees to enjoy one-time social insurance, the main reason is still due to limited awareness/understanding of social insurance policies. After a short period of receiving lump-sum social insurance, some people thought that they should not have received lump-sum social insurance to meet immediate financial needs (Huong, 2022). Research results of Huong (2022) have shown that factors of awareness of social security and employees' understanding of social insurance have a significant influence on the intention and decision to receive one-time social insurance of employees. Understanding of social insurance in general and pension insurance, in particular, is still limited; many employees do not understand clearly the payment rate, payment time, and benefits, feel hesitant because the participation time is too long, etc. Many workers are uncertain or do not care about the long-term consequences of receiving lump-sum social insurance and leaving the social insurance system, most of them share that at the time of applying for one-time social insurance benefits, they are underestimating or underestimating the impact of receiving lump-sum social insurance before retirement age on themselves, not to mention the impact on the social insurance system or society as a whole. The lack of confidence in the sustainability of the social insurance system and the security of future income in old age, along with the support and encouragement of important

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individuals (family, friends, relatives, colleagues)... are also the reasons mentioned. In the context of the current social insurance policy in Vietnam, the conditions and procedures for enjoying one-time social insurance benefits as prescribed by law are not complicated, so employees can easily decide to receive one-time social insurance when facing difficulties. financial hardship; even, in some cases, employees, even though they don't have urgent financial needs, still apply for lump-sum social insurance. Because they think that the simple procedure, withdrawing social insurance once to save or consume gradually is still more beneficial and they can continue to participate in social insurance to enjoy benefits when they are old. In the condition that the ability to access official information is limited, unofficial sources on social networking sites have been affecting the psychology of employees (incorrect information on the issue of social insurance funds will lose their ability to access social insurance, ability to pay, the issue of increasing the contribution rate, reducing the benefit, increasing the retirement age to increase the fund's revenue, or the problem of comparing bank savings with pensions, etc.). Meanwhile, state management agencies and agencies implementing social insurance are still lacking an overall communication strategy to direct public opinion and provide complete and accurate information. The situation of disseminating information and explaining policies at the wrong time, and lack of information selection, negatively affects the psychology of employees, reduces people's confidence in the social insurance system. In the media, communication has not been focused on the role and benefits of participating in social insurance, so many employees lack an understanding of policies and laws on social insurance. An inadequate explanation of the meaning and purpose of the new regulations when there are policy changes affects the employees' confidence in the social insurance system.

## 5. DISCUSSION AND RECOMMENDATIONS

### 5.1. Discussing research results

The increase in one-time social insurance benefits in Vietnam has posed great challenges. For employees, allowing employees to enjoy one-time social insurance, although it can solve the immediate financial needs of employees, also deprives them of the opportunity to secure income in old age, as well as will not have the effect of encouraging employees to continue paying social insurance until they are eligible for pension. The choice to enjoy a lump-sum social insurance is that the employee must accept a great disadvantage, the benefits of the employee will be more limited than the monthly pension. Specifically: Employees will not be added to the time of payment of social insurance contributions; Not be paid by the social insurance fund to buy health insurance cards at the end of working age and health insurance benefits; When the employee dies, the person in charge of the funeral is not entitled to the monthly or one-time funeral allowance and survivorship allowance; The one-time social insurance allowance for each year of payment of social insurance is only 1.5 months or 2 months the average monthly salary paid as prescribed, lower than the level paid by employees and employers (with 22% of the monthly salary paid on pension and survivorship fund, the total contribution amount is 2.64 months' salary per year); When participating in social insurance, when enjoying a pension, the pension level is adjusted periodically according to the consumer price index and economic growth while the one-time social insurance beneficiary is not entitled to this regime.

For the Social Security system, the increase in the number of people receiving one-time social insurance means an increase in the number of people leaving the system, leading to more difficulties in expanding and developing social insurance participants, increasing social insurance coverage, and realizing the goal of universal social insurance. Statistics show that by the end of June 2023, the whole country has 17.48 million people participating in social insurance, accounting for about 38.07% of the labor force of working age. Thus, to achieve the goal by 2025, about 45% of the labor force of working age will participate in social insurance; the period to 2030 is 60% according to the spirit of Resolution No. 28-NQ/TW of the 12th Central Committee in the context that increasing one-time social insurance is extremely difficult. At the same time, the one-time social insurance benefits tend to increase, which is a big challenge for the goal of expanding pension insurance coverage for the elderly. The current protection coverage of the pension tiers in Vietnam is not enough to ensure that all workers at the end of working age have a pension, the provisions of the current policy have created a "policy gap" for people from 60 years old and up to under 80 years old who both have no pension and are not from poor households/without disabilities; These subjects are not entitled to monthly allowances, leading to many difficulties in their old age. Calculation from the data of the General Statistics Office and the Vietnam Social Insurance has shown that currently only about 34% of people aged 65 and over are entitled to a regular pension or old age support (of which about 3.3 million people, about 3.3 million people receive monthly pensions and social insurance benefits in the form of social insurance; about 1.7 million elderly people are enjoying monthly social allowances from the state budget; currently and about 7 million elderly people are not currently entitled to any subsidy policies from the State budget or the Social Insurance fund). Meanwhile, according to the spirit of Resolution No. 28-NQ/TW, by 2025, about 55% of people after retirement age will enjoy a pension, with a target of 60% by 2030. In the context of population aging, along with an increase in the number of employees withdrawing one-time social insurance and leaving the social insurance system, this will be a big challenge for the social security system and the State budget in the future.

### 5.2. Recommendations

The consequences of the one-time withdrawal of social insurance are huge, not only for employees but also for the long-term development of the social security system. To be able to achieve the goal of universal social insurance, Vietnam needs to implement synchronous solutions to limit the increase in one-time social insurance benefits.

**Firstly**, it is necessary to implement solutions that affect macro factors such as social security models and policies, inflation, and the synchronization and incompleteness of the labor market. According to Duong (2021), there should be a change in the social security model with the shift from the Bismarck model to the Beveridge model with the association of social security rights and obligations with the State, social security contributions. Social insurance is legalized in the form of a tax to prevent the situation of stopping payment and enjoying one-time social insurance. On the other hand, macro monetary and fiscal policies need to be flexible to control inflation and maintain stable and reasonable economic interest rates, to encourage and create favorable conditions for businesses to develop, development, minimizing bankruptcy, dissolution in enterprises or reducing margins. In addition, it is necessary to have policies to encourage enterprises to train to improve workers' skills and awareness, including skills and professional awareness and social responsibility. Duong (2021) also believes that it is necessary to have a macro impact on the labor market through tools such as unemployment insurance with the promotion of vocational training, job introduction, solving unemployment workers, helping employees change jobs when they can't do their old jobs. Completing unemployment insurance policies, bringing into full play the functions of unemployment insurance, ensuring unemployment insurance is a tool for labor market management. If the unemployment insurance policy is well implemented, it will also partially solve the short-term financial problem so that employees can rest assured to stabilize their lives, instead of looking to one-time social insurance as a financial tool. to overcome the predicament.

**Second**, it is necessary to improve the legal system of social insurance and increase the attractiveness of social insurance policies. Policymakers of Vietnam Social Insurance need to study and amend legal regulations to increase the attractiveness of social insurance policies, especially pension insurance policies. Reducing the requirement for the number of years of contribution so that participants can enjoy a lower monthly pension than the current one, increasing the likelihood that employees will be eligible for pensions by reducing the minimum time participating in social insurance can give employees more incentive to continue their contribution phase. Continue to improve voluntary social insurance in the direction of diversity and flexibility. It is necessary to strengthen policies to support contributions from the State budget and mobilize other social resources. At the same time, research to expand voluntary social insurance regimes, add short-term social insurance packages, have an easy and flexible conversion mechanism between voluntary social insurance and compulsory social insurance, increase opportunities for employees after they lose their job, have no chance to return to the formal labor sector, they can continue to participate in voluntary social insurance contributions to qualify for a pension instead of a lump-sum social insurance contribution. To limit employees from receiving one-time social insurance, it is also necessary to re-stipulate the conditions for enjoying one-time social insurance in a narrower and stricter direction, in line with international practices and experiences of countries around the world.

**Third**, implement financial policies to support businesses to reduce difficulties, create favorable conditions for enterprises to develop sustainably, create jobs for employees and strengthen the implementation of social insurance contributions of enterprises. The maintenance and development of an enterprise are decisive to the creation of jobs for employees the implementation of social insurance regimes and policies in general and to enjoyment of one-time social insurance in particular. To reduce difficulties and create favorable conditions for enterprises to develop, it is necessary to continue implementing financial policies to support enterprises, such as: providing capital support for enterprises (through measures including: restructuring the repayment term; considering loan interest exemption and reduction for small and medium enterprises from the small and medium Enterprises Development Fund; reduce fees, keep the debt group unchanged); enterprises may suspend payment to the retirement and survivorship fund when suspending production and business for 01 month or more due to difficulties caused by natural disasters, fires, epidemics, crop failure...; there is a policy of exemption, extension and extension of taxes, tax payment deadlines and state budget revenues for businesses that are seriously affected by the impact of the Covid-19 epidemic on their production and business activities. Paying attention to and promoting the implementation of policies to encourage and support enterprises in fulfilling their responsibility to pay social insurance contributions, such as: continuing to reform administrative procedures, simplifying registration procedures such as implementing a one-stop mechanism (combining business registration and social security), reducing registration waiting time and reducing registration fees; Simplify the collection of fees through a close coordination mechanism between tax authorities and social insurance organizations in the collection of social insurance; having tax incentives for businesses that perform well on social insurance; strengthen exchange and dialogue between the social insurance agency and enterprises to solve difficulties and obstacles in the process of implementing social insurance policies. It is necessary to strengthen forms of encouragement, reward and honor for enterprises that perform social insurance responsibilities for employees.

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**Fourth**, strengthen education and communication work, raise employees' awareness about the benefits of retirement insurance and the disadvantages of enjoying one-time social insurance. In the long run, the element of education related to the formation of awareness and a sense of responsibility for the welfare of employees is extremely necessary; this requires the participation of general education, vocational secondary schools, colleges and universities (Duong, 2021). It is necessary to focus on promoting propaganda on the benefits of accumulating time to pay social insurance premiums to enjoy retirement pensions in old age as well as the disadvantages of using the one-time form of social insurance benefits. Huong (2022) also emphasized that it is necessary to develop and implement an overall communication strategy to expand the audience of the social insurance system, including limiting the status of one-time social insurance benefits. Focus on clarifying for employees to realize the difference between forms of accumulation, emphasizing the superiority of participation in social insurance compared to other forms of accumulation. It is necessary to innovate in the content, form and method of communication so that people can easily access new points, the need for their benefits and rights and responsibilities in participating in social insurance in the immediate future and long-term, overcome the general communication, heavy on form. Using a combination of diverse and flexible forms of propaganda, such as: organizing conferences, seminars, training, seminars, direct dialogues, organizing mobile propaganda teams, propaganda contests, publication releases; conducting specialized pages, categories, topics and articles, reportages, news, organizing seminars, television game shows... In addition, organizing visual propaganda through propaganda publications: posters, slogans, posters, posters, leaflets, brochures, handbooks... with rich content according to the socio-economic and cultural characteristics of each region.

## 6. CONCLUSION

In Vietnam, the increase in the number of workers who stop participating in social insurance and withdraw to receive one-time social insurance benefits in recent years shows the inadequacies of the system as well as from the employees' side. The departure of employees from the social insurance system is a matter of concern, not only directly affecting the interests of employees but also affecting the objectives of social insurance policies, efforts and determination to implement social security for people of our Party and State. In this article, using secondary data collection methods and descriptive, comparative and contrasting statistical methods, the author has analyzed the current state of legal regulations, and the increasing situation of enjoying one-time social insurance benefits in Vietnam, analyzing the impact factors and challenges posed to employees and the social security system. Along with that, the author proposes some recommendations and policy implications to limit the status of one-time social insurance benefits, towards realizing the goal of expanding social insurance coverage and ensuring income security for employees in their old age.

## REFERENCES

- 1) Aksel Hatland (1998), *The Changing Balance Between Incentives and Economic Security in Scandinavian Unemployment Benefit Schemes*, International Social Security Association Conference Book.
- 2) Bodie, Z., Marcus, A. J., & Merton, R. C. (1988), "Defined benefit versus defined contribution pension plans: what are the real trade-offs?", *Pensions in the US Economy*, 139–162 in Z. Bodie, J. Shoven and D. Wise (eds).
- 3) Central Committee of the Communist Party of Vietnam (2018). *Resolution No. 28-NQ/TW of the Seventh Conference of the 12th Central Executive Committee on reforming social insurance policies*, issued on May 23, 2018.
- 4) Choi, J., Laibson, D., Madrian, B.C., Metrick, A. (2002), "Defined contribution pensions: Plan rules, participant choices, and the path of least resistance", *Tax policy and the economy*, 16, pp.67-113.
- 5) Duong, N.T.H. (2021), "Factors affecting the increase in one-time social insurance benefits in Vietnam", *Proceedings of the scientific conference One-time social insurance in Vietnam, practice and problems*, National Economics University, Hanoi, pp.71-78.
- 6) Exley, C. J., Mehta, S. J., & Smith, A. D. (1997), "The financial theory of defined benefit pension schemes", *British Actuarial Journal*, 3(4), pp.835-966.
- 7) General Statistics Office of Vietnam (2020), *Report on the impact of the COVID-19 epidemic on the labor and employment situation in the third quarter of 2020*.
- 8) Harrison, J. M., & Sharpe, W. F. (1983). Optimal funding and asset allocation rules for defined-benefit pension plans. In *Financial aspects of the United States pension system* (pp. 91-106). University of Chicago Press.
- 9) Huong, L.T.X. (2022). *Factors affecting the intention to receive one-time social insurance of employees in Vietnam*, Ph.D. thesis, National Economics University, Hanoi.
- 10) International Labor Organization (1952), *Convention 102 on Minimum Rules for Social Security*, 28 June 1952.
- 11) International Labor Organization (1967), *Convention 128 on the rights of persons with disabilities and the elderly*, June 29, 1967.
- 12) International Labor Organization (1967), *Recommendations on Injury, Old Age and Survivors' Allowances*, June 29, 1967.

## Analyzing the Situation of Increasing One-Time Social Insurance Withdrawals in Vietnam Policy Recommendation

- 13) Micheal Burda & Charles Wyplosz (2013), *Macroeconomics a European Text*, Oxford University Press, ISBN 978-0-19-960864-5.
- 14) National Assembly of the Socialist Republic of Vietnam (2009). Law on Elderly No. 39/2009/QH12, promulgated on November 23, 2009.
- 15) National Assembly of the Socialist Republic of Vietnam (2014). *Law on Social Insurance No. 58/2014/QH13*, promulgated on November 20, 2014.
- 16) National Assembly of the Socialist Republic of Vietnam (2015), *Resolution No. 93/2015/QH13 on the implementation of the policy of enjoying one-time social insurance benefits for employees*, promulgated on June 22, 2015.
- 17) Viet Nam Social Security (2022). *Report on work results in 2016, 2017, 2018, 2019, 2020, 2021, 2022*. Hanoi, Vietnam.
- 18) Website <https://lsvn.vn/co-hon-665-000-nguoi-rut-bhxh-mot-lan-trong-6-thang-dau-nam-2023-1689305108.html>, accessed July 15, 2023.
- 19) Website <https://phunu.nld.com.vn/cong-doan/bhxh-viet-nam-ly-giai-so-nguoi-rut-bhxh-mot-lan-nam-2022-tang-20221216174015875.htm>, accessed May 30, 2023.
- 20) Yehuda Kahane (1978), *The Theory on Insurance Risk Premiums, the Reexamination in the Light of Recent Development in Capital Market Theory*, Telaviv University, Israel, Department of Economics Working Paper.



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## The Effect of Coconut Water on Decreasing MDA and IL-6 Levels in Male Wistar Rats Induced with High-Fat Diet



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**ABSTRACT:** Dyslipidemia is a condition in which there are abnormal levels of lipids in the blood, including increased levels of cholesterol, LDL (*Low-Density Lipoprotein*), and triglyceride levels, as well as decreased HDL levels (*High-Density Lipoprotein*) which causes oxidative stress. Oxidative stress results in tissue damage which triggers an inflammatory reaction that releases proinflammatory cytokines such as *Interleukin-6* (IL-6) which increases in blood endothelial cells and triggers *Malondialdehyde* (MDA) which increases as a result presence of lipid oxidation in tissues. This condition can be neutralized by consuming antioxidants from outside the body such as young coconut water. This research aims to know the effect of giving young coconut water on the rate of MDA and IL-6 in male *Wistar* rats who are given a high-fat diet. The research method is a *posttest-only control group design*. The subjects of the study were 24 male *Wistar* rats which were randomly divided into 4 groups. Group K1 was given standard feed and distilled water. Group K2 was given a high-fat diet without coconut water. Groups K3 and K4 were given a highfat diet and young coconut water at doses of 4mL/200gBW/day and 8mL/200gBW/day, respectively. The study was conducted for 29 days by taking blood to check MDA levels using the TBARS and IL-6 methods using the ELISA method. The lowest average of MDA level was in the K3 group (0.071 ng/L) and the lowest average of IL-6 level was in the K4 group (4.377 ppm). *Kruskal Wallis* test result showed the p-value of MDA was 0.004 ppm and at IL-6 levels was 0.020 ng/L. Differences in MDA levels between groups K1-K2 (0.004), K2-K3 (0.004), and -K4 (0.004). Differences in IL-6 levels between groups K2-K3 (0.016), K2-K4 (0.004). The administration of coconut water can significantly reduce the levels of MDA and IL-6 in male *Wistar* rats induced with a high-fat diet.

**KEYWORDS:** Coconut water, MDA levels, IL-6 levels

### I. INTRODUCTION

Dyslipidemia is defined as a characteristic disorder of lipid metabolism and is characterized by elevated total cholesterol levels, low-density lipoprotein (LDL), triglycerides, and decrease high-density lipoprotein (HDL).<sup>1</sup> The increase in LDL due to the consumption of foods that contain fat causes free fatty acid metabolism to occur. Dyslipidemia occurs and affects the high free radicals in the body. The imbalance between free radicals and the body's natural antioxidants causes a condition of oxidative stress which results in tissue damage. This can trigger an inflammatory reaction that releases pro-inflammatory cytokines such as interleukin-6 (IL-6) in blood endothelial cells and triggers Malondialdehyde (MDA) consequences presence of lipid oxidation in tissues.<sup>2</sup> This condition causes the capacity of antioxidant enzymes to decrease so that natural antioxidant supplies are needed from outside the body such as young coconut water. Young coconut water has the potential to reduce oxidative stress levels, but the effect on levels is unknown Malondialdehyde (from MDA) interleukin-6 (IL-6) in *Wistar* rats fed a high-fat diet.<sup>3</sup>

Dyslipidemia is a risk factor for cardiovascular disease.<sup>4</sup> Global Burden of Disease Study reported that nearly 17.6 million deaths were caused by cardiovascular Disease (CVD).<sup>5</sup> Cardiovascular disease accounts for the highest mortality in the world where around 80% of global deaths come from developing countries.<sup>6</sup> The prevalence of cardiovascular disease in Indonesia in 2013 was 0.5% or 883,447 people, meanwhile, in 2018, this figure increased to 1.5% or around 1,017,290 people.<sup>7</sup> Previous studies also proved that effective management of patients with dyslipidemia can reduce the incidence, mortality, and disease burden of CVD.<sup>8</sup> Coconut water is a natural source of antioxidants and easily available in Indonesia. Natural antioxidants are able to protect the body against cell damage caused by ROS, are able to inhibit the occurrence of degenerative diseases, and are able to inhibit lipid

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peroxidation.<sup>9</sup> Coconut water contains antioxidants such as Polyphenols, L-Arginine, and Vitamin C.<sup>9</sup> Several studies have shown that coconut water at a dose of 8 mL/200 gBW has an effect on IL-6 and MDA in Wistar rats with metabolic syndrome.<sup>10</sup> Research IJMRA, Volume 6 Issue (Month) 2023

Conducted stated that coconut water at a dose of 4 mL/100 gBW/day can reduce IL-6 levels in male white rats induced by STZ-Na.<sup>11</sup>

Dyslipidemia causes an increase in the accumulation of lipids in the liver, thereby reducing the body's ability to lower blood fats.<sup>12</sup> Accumulation of cholesterol in endothelial cells, hepatocytes, leukocytes, erythrocytes, and platelets triggers its production of reactive oxygen species (ROS) and reduces antioxidant defense mechanisms.<sup>13</sup> This condition causes oxidative stress and affects body changes.<sup>14</sup> Consumption of unbalanced foods such as foods high in cholesterol and high in carbohydrates causes changes in lipid profiles, oxidative stress, and inflammation.<sup>15</sup> A high-fat diet causes an increase in Lipopolysaccharides (LPS) plasma and activates toll-like receptor 4 (TLR4) resulting in increased levels of inflammatory cytokines, such as interleukins (IL-6, IL-17, and TNF- $\alpha$ ) which can lead to increased ROS.<sup>16</sup> Increased ROS can be neutralized by consuming antioxidants from outside the body such as coconut water. Coconut water has anti-inflammatory and antioxidant properties that can work to neutralize free radicals in the body, which is expected to prevent an increase in MDA and IL-6 levels. Further research is needed on the effect of giving coconut water on MDA and IL-6 levels. In mice fed a high-fat diet.

## II. MATERIAL AND METHOD

### Experimental Subjects

The research subject was male Wistar rats which were divided into four groups. The control group (K1) and the treatment group (K2, K3, and K4).

### Administration of Coconut Water

The control group was not given a high-fat diet (K1), the control group was given a high-fat diet (K2), the treatment group was given young coconut water therapy at a dose of 4mL/200gBW/day (K3), and the control group treatment given young coconut water therapy at a dose of 8 mL/200 gBW/day (K4)

### Data Analysis

The normality and homogeneity data test using Shapiro Wilk and Levene test. The data of MDA and IL-6 levels were analyzed using the One-Way ANOVA, the Tamhane, and the LSD test.

## III. RESULT

### The Effect of Coconut Water on MDA Levels

Table 1 shows that the highest average level of MDA was in the second treatment group (K2) which was given a high-fat diet and distilled water (0.096 ppm). The third treatment group (K3) obtained the lowest MDA level (0.071 ppm) by giving the coconut water dose of 4mL/200gBW/day and a high-fat diet, then followed by the control group (K1) by feeding standard and distilled water, then the fourth treatment group (K4) by giving young coconut water a dose of 8mL/200gBW/day. Test results KruskalWallis showed significant differences in all groups with a p-value of 0.004 ( $p < 0.05$ ).

**Table 1. Results of Average Analysis, Normality Test, Homogeneity Test on MDA Levels and IL-6 Levels**

Variable	Group				Sig.(p)
	K1 N=6	K2 N=6	K3 N=6	K4 N=6	
<b>MDA (ppm)</b>					
Average	0.072	0.096	0.065	0.058	
Std. deviation	0.011	0.003	0.033	0.020	
Shapiro Wilk	0.073*	0.050*	0.644*	0.627*	
Levene Test					0.001
					One Way Anova
					<u>0.021***</u>
<b>IL-6 (ng/L)</b>					
Average	5.043	5.760	4.513	4.812	
Std. deviation	0.985	0.543	0.966	0.861	



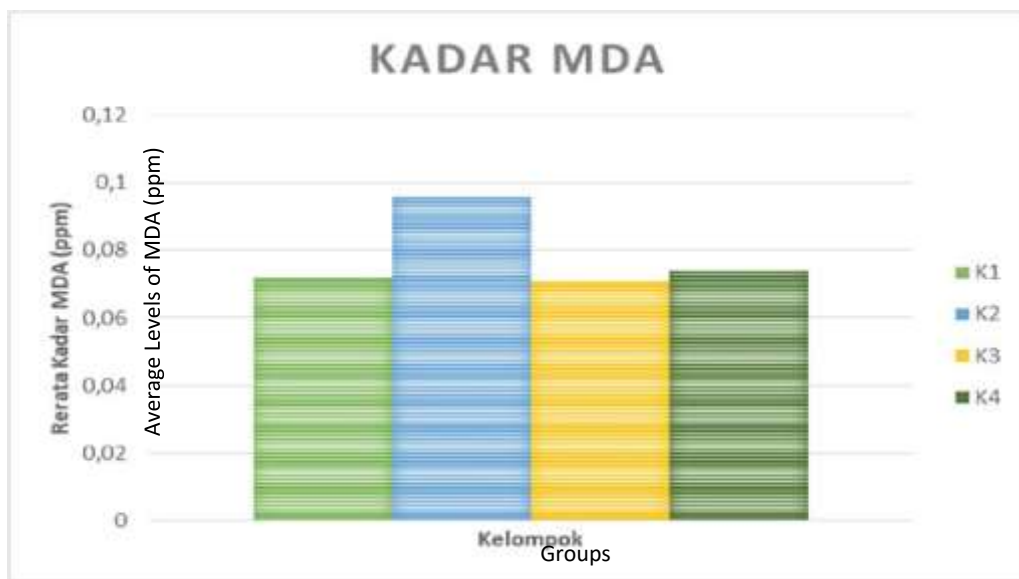
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Shapiro Wilk	0.154*	0.993*	0.612*	0.118*
Levene Test				0.334**
One Way Anova				0.108

Information: \*Normal  $p > 0.05$  \*\*Homogeneous  $p > 0.05$  \*\*\*Significant  $p < 0.05$

**Table 2. Differences in MDA levels between the 2 groups using LSD test**

Group	<i>p-Value</i>
K1 vs K2	0.004*
K1 vs K3	0.935
K1 vs K4	0.808
K2 vs K3	0.004*
K2 vs K4	0.004*
K3 vs K4	0.623



**Figure 1. The average of MDA levels between groups**

Mann Whitney test result shows the MDA levels in the K1 group had a significant difference to the K2 group with a p-value of 0.004 ( $p < 0.05$ ) while there was no significant difference to the K3 group with a p-value of 0.935 and the K4 group with a p-value of 0.808 ( $p > 0.05$ ) (Table 2). The K2 group had a significant difference from the K3 and K4 groups with a p-value of  $p = 0.04$  ( $p < 0.05$ ). There was no significant difference between the K3 and K4 groups with a p-value of  $p = 0.623$  ( $p > 0.05$ ). Based on the data above, it can be concluded that giving coconut water at 4 mL/200gBW/day and 8mL/200gBW/day has a significant effect on reducing MDA levels in male Wistar rats induced with a high-fat diet.

### The Effect of Coconut Water on IL-6 Levels

The highest average levels of IL-6 (Table 1) is the second treatment group (K2) which was given a high-fat diet and distilled water (5,760 ng/L). The fourth treatment group (K4) was given young coconut water at a dose of 8mL/200gBW/day with a high-fat diet and had the lowest average of IL-6 level (4,377 ng/L), followed successively by the third treatment group (K3) which was given coconut water dose of 4mL/200gBW/day with a high-fat diet and the control group (K1) with standard feeding and distilled water. Kruskal-Wallis test results showed significant differences in all groups with a p-value of 0.020 ( $p < 0.05$ ).

**Table 3. Differences in IL-6 levels between the 2 groups using LSD test**

Group	<i>p-Value</i>
K1 vs K2	0.109
K1 vs K3	0.749
K1 vs K4	0.261

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K2 vs K3	0.016*
K2 vs K4	0.004*
K3 vs K4	0.261

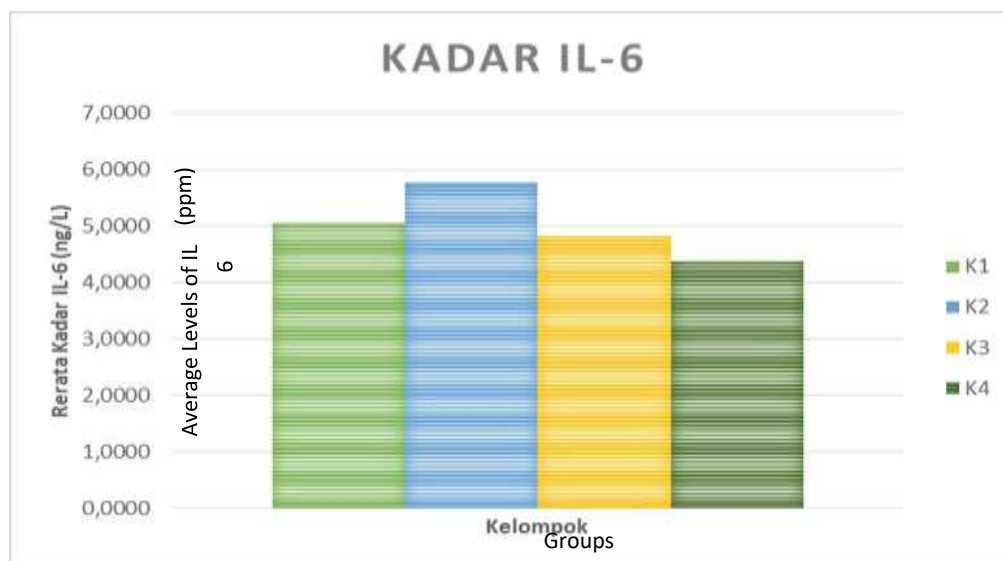


Figure 2. The average of IL-6 levels between groups

Mann Whitney test result (Table 3) shows that IL-6 levels in group K1 did not differ significantly from group K2 with a p-value of 0.109, group K3 with a p-value of 0.749, and group K4 with a p-value of 0.261 ( $p > 0.05$ ). The K2 group had significant differences from the K3 and K4 groups with a  $p < 0.05$ . There was no significant difference between the K3 and K4 groups with a p-value of  $p = 0.261$  ( $p < 0.05$ ). Based on the data above, it can be concluded that giving young coconut water at 4 mL/200gBW/day and 8mL/200gBW/day has a significant effect on decreasing IL-6 levels in male Wistar rats given a high-fat diet.

#### IV. DISCUSSION

Dyslipidemia causes an increase in the accumulation of lipids in the liver, thereby reducing the body's ability to lower blood fats.<sup>12</sup> Accumulation of cholesterol in endothelial cells, hepatocytes, leukocytes, erythrocytes, and platelets triggers its production of reactive oxygen species (ROS) and reduces antioxidant defense mechanisms.<sup>13</sup> This condition causes oxidative stress and affects body changes.<sup>14</sup> Consumption of unbalanced foods such as foods high in cholesterol and high in carbohydrates causes changes in lipid profiles, oxidative stress, and inflammation.<sup>15</sup> The treatment group showed increased cholesterol levels ( $> 54$  mg/dL), LDL ( $> 27.2$  mg/dL), and HDL ( $< 35$  mg/dL) as a result of being given a high-fat diet using egg yolks of 2 ml/head/day by sonde for 14 days on K2, K3, and K4.

A high-fat diet causes an increase of Lipopolysaccharides (LPS) plasma and activates toll-like receptor 4 (TLR4) resulting in increased levels of inflammatory cytokines, such as interleukins (IL-6, IL-17, and TNF- $\alpha$ ) which can lead to increased ROS.<sup>16</sup> Increased ROS can be neutralized by consuming antioxidants from outside the body such as young coconut water. Young coconut water has anti-inflammatory and antioxidant properties that can work to neutralize free radicals in the body, which is expected to prevent an increase in MDA and IL-6 levels. Further research is needed on the effect of giving young coconut water on MDA and IL-6 levels in mice fed a high-fat diet.

The results of examining MDA levels in the K2 group that was given a high-fat diet without giving young coconut water experienced a significant increase compared to the control group (K1), the group that was given coconut water at a dose of 4 mL/200 gBW/day (K3) and 8 mL/day. 200 gBW/day (K4) as shown in table 5.1. This suggests that hypercholesterolemia will trigger lipid peroxidation. Lipid peroxidation is a reaction that occurs between free radicals and polyunsaturated fatty acids (*polyunsaturated fatty acid*, PUFA) which are present in cell membranes and LDL. As a result, the blood vessels can get thicker by this. Polyunsaturated fatty acids that undergo peroxidation form products that are toxic to the body, Malondialdehyde (MDA).<sup>17</sup>

MDA levels in the group that was given a high-fat diet and given coconut water at doses of 4 mL/200 gBW/day and 8 mL/200 gBW/day decreased as shown in Table 1. The administration of coconut water is proven to inhibit damage caused by free radicals and can reduce MDA levels. Young coconut water besides containing vitamins and minerals, also contains DPPH free radical scavenging which can reduce the increase in free radicals. Coconut water also contains ascorbic acid. Ascorbic acid plays a role in the synthesis of collagen, carnitine, and neurotransmitters, it also plays a role in microsomal metabolism and has antioxidant

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activity. Ascorbic acid is a reducing agent or an electron donor in the antioxidant system. Ascorbic acid gives ionic groups hydrogen on intracellular ROS/NOS.<sup>18</sup> Another similar study conducted by Nova stated that young coconut water at a dose of 4mL/100gBW was able to increase plasma insulin levels and reduce glucose and MDA levels in type 2 DM pregnant rats.<sup>19</sup>

The results of examining IL-6 levels in the K2 group that were given a high-fat diet without giving young coconut water experienced a significant increase compared to the control group (K1), the group that was given coconut water at a dose of 4 mL/200 gBW/day (K3) and 8 mL/200 gBW/day (K4) as in table 5.1. Feeding fat can induce ROS which will have an impact on lipid metabolism. When there is a disturbance in lipid metabolism, there will be an increase in adipose tissue mass caused by the incoming energy being higher than the energy expended, resulting in an increase in the size and number of adipose tissues. An increase in the size and number of adipose tissues leads to the production of pro-inflammatory cytokines, one of which is IL-6. This is caused by oxidative stress which will activate Bax in mitochondria so that release occurs cytochrome-c.<sup>20</sup> This release has an impact on inhibiting the flow of electrons in the respiratory chain. Levels  $\beta$ -oxidation and FFA also increased so that there was an increase in the levels of NADH, FADH, and sending electrons to the respiratory chain. This imbalance in sending electrons and removing electrons causes an accumulation of electrons in the respiratory chain which will form an excess nitric oxide (NO) by nitric oxide synthase (iNOS) which then activates NF- $\kappa$ B expression to induce IL-6.<sup>21</sup>

### V. CONCLUSION

The administration of coconut water at a dose of 8 mL/200gBW/day and 4 mL/200gBW/day can decrease the MDA and IL-6 levels in male Wistar rats induced with high-fat diet.

### ACKNOWLEDGEMENT

The authors declare no conflict of interest and no involvement of sponsors or funding for this research.

### REFERENCES

- 1) Saragih AD. Terapi Dislipidemia Untuk Mencegah Resiko Penyakit Jantung Koroner. *Indones J Heal Sci*. 2020;1(1):15-24.
- 2) Tazkia R, Amalia Y, Damayanti DS. The Effects of Soursop (*Annona Muricata*) Leaves Water Extract in SOD and MDA Hepar Levels of Wistar Rats Induced High Fat and High Fructose Diet. *J Biokomplementer Med*. 2019;6(3):1-8.
- 3) Zulaikhah ST, Wibowo JW, Wibowo MSB. Pengaruh Air Kelapa Muda Terhadap Kadar Antioksidan Endogen Akibat Paparan Asap Rokok pada Tikus Jantan Galur Wistar. 2021;12(6):290-293. doi:http://dx.doi.org/10.33846/sf12315
- 4) Perk J, De Backer G, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). *Eur Heart J*. 2012;33(13):1635-1701. doi:10.1093/eurheartj/ehs092
- 5) W. F, Y. W, K. L, Y. Y, S. L. Exploration of dyslipidemia prevalence and its risk factors in a coastal city of china: A populationbased cross-sectional study. *Int J Clin Exp Med*. 2019;12(3):2729-2737.
- 6) Alshamiri M, Ghanaim MMA, Barter P, et al. Expert opinion on the applicability of dyslipidemia guidelines in Asia and the middle east. *Int J Gen Med*. 2018;11:313-322. doi:10.2147/IJGM.S160555
- 7) Mansbridge J. RISKESDAS. *Ris Kesehatan DASR*. 2013;7(5):803-809. doi:10.1517/13543784.7.5.803
- 8) Kemenkes RI. Laporan Nasional Riset Kesehatan Dasar. *Kementerian Kesehatan RI*. Published online 2018:1-582.
- 9) Zulaikhah ST, Wibowo JW. Pengaruh Pemberian Air Kelapa Muda Terhadap Kadar Ureum Pada Tikus Galur Wistar Yang Terpapar Plumbum (Pb) Siti Thomas Zulaikhah. *J Penelit Kesehat Suara Forikes*. 2020;11(April):198-201. doi:http://dx.doi.org/10.33846/sf11221
- 10) Pratama AA, Zulaikhah ST, Husaana A. Pemberian Air Kelapa Muda untuk Menurunkan Kadar Glukosa Darah Puasa pada Tikus dengan Sindroma Metabolik. *J Penelit Kesehat Suara Forikes*. 2022;13(November):197-199.
- 11) Zulaikhah ST, Wahyuwibowo J, Suharto MN, Enggartiasto BH, Ortanto MIR, Pratama AA. Effect of tender coconut water (TCW) on TNF- $\alpha$ , IL-1 and IL-6 in streptozotocin (STZ) and nicotinamid (NA) induced diabetic rats. *Pharmacogn J*. 2021;13(2):500-505. doi:10.5530/pj.2021.13.63
- 12) Lee KS, Chun SY, Kwon YS, Kim S, Nam KS. Deep sea water improves hypercholesterolemia and hepatic lipid accumulation through the regulation of hepatic lipid metabolic gene expression. *Mol Med Rep*. 2017;15(5):2814-2822. doi:10.3892/mmr.2017.6317
- 13) Mittal M, Siddiqui MR, Tran K, Reddy SP, Malik AB. Reactive oxygen species in inflammation and tissue injury. *Antioxidants Redox Signal*. 2014;20(7):1126-1167. doi:10.1089/ars.2012.5149
- 14) Forrester SJ, Kikuchi DS, Hernandez MS, Xu Q, Griendling KK. Reactive oxygen species in metabolic and inflammatory signaling. *Circ Res*. 2018;122(6):877-902. doi:10.1161/CIRCRESAHA.117.311401
- 15) G Morabito , P Kucan MS. Endocrine , Metabolic & Immune Disorders - Drug Targets. *J food Microbiol*. 2015;15(1):1-2.

## The Effect of Coconut Water on Decreasing MDA and IL-6 Levels in Male Wistar Rats Induced with High-Fat Diet

- 16) Peluso I, Raguzzini A, Villano D, et al. High Fat Meal Increase of IL-17 is Prevented by Ingestion of Fruit Juice Drink in Healthy Overweight Subjects. *Curr Pharm Des.* 2012;18(1):85-90. doi:10.2174/138161212798919020
- 17) Lusiantari R, Pramaningtyas MD, Nurmasitoh T, Pattimura RH, Dewanti A. Shortening tends to increase aortic foam cell count and wall thickness in male Wistar rats. *Universa Med.* 2018;37(1):13. doi:10.18051/univmed.2018.v37.13-18
- 18) Mulyanti. Pengaruh Pemberian Air Kelapa Muda (*Cocos Nucifera* L) Terhadap Indeks Parasitemia, Kadar Malondialdehyda Dan Kadar Hemoglobin Pada Malaria. *Univ Diponegoro.* Published online 2016.
- 19) Nova FS, Chasani S, Hussanna A, Zulaikhah ST. Tender coconut water Inhibits the process of lipid peroxidation, reduce glucose levels, and increase plasma insulin in pregnant diabetic rats. *Pharmacogn J.* 2020;12(1):162-167. doi:10.5530/pj.2020.12.24
- 20) Ferenčić A, Šoša I, Stemberga V, Cuculić D. Obesity-related low-grade chronic inflammation: implementation of the dietary inflammatory index in clinical practice is the milestone? 2018;54(2):108-117. doi:10.21860/medflum2018
- 21) Glass CK, Olefsky JM. Inflammation and lipid signaling in the etiology of insulin resistance. *Cell Metab.* 2012;15(5):635-645. doi:10.1016/j.cmet.2012.04.001



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## Government Spending, Population, and Poverty



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**ABSTRACT:** This study aims to determine the effect of government spending on social assistance, subsidies, and population on poverty for the 2010-2020 period in West Sumatra. Test data analysis using descriptive statistical analysis, classical assumption test, multiple linear regression analysis, and hypothesis testing using partial tests, simultaneous tests, and Adjusted R Square. Data processing method using SPSS Version 16 and Microsoft Excel 2010. The results showed that there was no effect of social assistance on poverty in West Sumatra Province with a probability value of  $0.486 > 0.05$ , the subsidy variable on poverty in West Sumatra Province with a significant probability of  $0.610 > 0.05$ , and the population variable on poverty in West Sumatra Province has a significant and negative effect with a significant probability of  $0.000 < 0.05$ . Simultaneously there is the influence of social assistance, subsidies, and the population on poverty with a probability value of  $0.000 < 0.05$ . The magnitude of the influence of the independent variable on the dependent variable is shown by the adjusted r-square value of 89.9% and the remaining 10.1% is explained by other factors. The results of the study stated that social assistance and subsidies did not affect poverty, while the government stated that the program was aimed at alleviating poverty. So it is hoped that the programs created by policymakers at the provincial level are truly on target.

**KEYWORDS:** Social Assistance, Subsidies, Total Population, and Poverty.

### I. INTRODUCTION

Indonesia is a country that has abundant natural resources, various tribes, and various cultures. However, all of this can only make Indonesia classified as a developing country, due to the high population growth rate, high unemployment rate, uneven infrastructure development, high poverty rate, uneven quality education, and others.

Poverty is one of the problems faced by a country/region, until now many countries/governments have not been able to solve the problem. Many government policies and programs as a form of poverty reduction efforts undertaken by the central and regional governments are still inadequate and not on target. Indonesian Central Bureau of Statistics data shows the number of poor people in West Sumatra as follows:

**Table 1. Number of Population and Poor Population in Indonesia and West Sumatra (2010-2020)**

No	Year	West Sumatera		Indonesia	
		Poor (thousands)	Poor Population (%)	Poor (Thousands)	Poor Population (%)
1	2016	376,51	7,14	27 764,32	10,70
2	2017	359,99	6,75	26 582,99	10,12
3	2018	353,24	6,55	25 674,58	9,66
4	2019	343,09	6,29	24 785,87	9,22
5	2020	364,79	6,56	27 549,69	10,19
6	2021	339,93	6,04	26 503,65	9,71
7	2022	343,82	6,04	26 363,27	9,57

**Source:** Indonesian Central Bureau of Statistics

Table 1 above illustrates the number of poor people and the percentage of poor people compared to the total population. The trend of the poor tends to decrease, except for 2020 due to the Covid-19 pandemic, and post-covid after 2020 the trend of the number of poor people has returned to decline. The poor population in West Sumatra is much lower than the Indonesian average.

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The value of the percentage of poor people is still large even though it is still below single digits. The most important problem of poverty is the low quality of existing resources, due to the inability to meet the needs for a decent, healthy life and a qualified level of education. The quality of human resources results in many workers who do not match the company's qualifications and are ultimately unemployed.

To overcome the problems caused by poverty, the government carried out many programs, one of which was social assistance. Social Assistance is expenditure in the form of money, goods, or services provided by the Central/Regional Government to the community to protect the community from the possibility of poverty and increase economic capacity and community welfare. Allocation of government spending is intended for the public interest, especially for the people. Appropriate government budget policies can reduce the problem of poverty (Khamilah, 2017).

Regulation Of the Minister of Home Affairs Number 32 In 2011 about "Grant Guidelines and Social Assistance Sourced from The Income and Regional Shopping Budget". The criteria for recipients of social assistance are those who live in the administrative area of the district government (Pemkab) concerned and have a clear identity. The aim of Social Assistance is poverty alleviation, social rehabilitation, social protection, social empowerment, social security, and disaster management. Assistance must be given selectively, and the use of the budget is clear.

Another form of government program is the provision of subsidies to private companies and state-owned companies. Subsidies are given in the form of production cost assistance to certain companies/institutions so that the selling price of the goods/services produced can be affordable by the general public. Of course, these companies/institutions produce products or services for the general public. Providing subsidies can encourage a greater increase in production and an increase in company income and keep the wheels of the economy running.

Besides that, to control poverty that is no less important is population control. In 2020 Indonesia's population will reach 270.20 million people and in 2021 with 277,858,332 people, where Indonesia occupies the fourth position with the largest population in the world among China, India, and the United States. As the population increases, there will be challenges or problems that must be considered, including the economy, education, job opportunities, and population density. To overcome these problems, the government needs special attention to various strategies in overcoming them in the hope of helping the economy run better.

Based on the description above, researchers want to know the relationship between social assistance, subsidies, and population can affect poverty in West Sumatra, which is applied in the formulation of the problem as follows:

- a. How does social assistance affect poverty in West Sumatra Province in 2010-2020?
- b. What are the subsidies for poverty in West Sumatra Province in 2010-2020?
- c. What is the influence of the population on poverty in West Sumatra Province in 2010-2020?
- d. How does the influence of social assistance, subsidies, and population simultaneously have a significant effect on poverty in West Sumatra Province in 2010-2020?

## II. LITERATURE STUDY

Poverty according to (Lisna, Sinaga, Firdaus, & Sutomo, 2013) a situation where there is an inability to meet basic needs, such as food, clothing, shelter, education, and health. According to (Foster, Greer, & Thorbecke, 1984), the measurement of poverty uses The Head Count Index (HCI-P0). The headcount index (P0) measures the proportion of the population that is poor (Haughton & Shahidur, 2009). According to (Nurwati, 2008), Poverty is a social life that continues to exist in society. Besides that, poverty is a very crucial problem, because its consequences not only cover economic problems but also have an impact on social problems and domestic political instability. It can be said, poverty is a global life problem that has become a concern in all countries even though the impact of poverty is very different. The problem of poverty is so phenomenal, that many researchers have studied the problem of poverty and the factors that influence it, including (Balvociute, 2020), (Mulazid & Mufliha, 2019), (Pokrzywa, 2020), (Zhou & Che, 2021).

Social assistance, according to Law Number 11 of 2009 is defined as social protection which aims to enable a person, family, and/or community to live a normal life. Barrientos (2010) Social protection is divided into three types: the first is social insurance, the second is social assistance, and the third is labor market regulation. In research (Firmansyah & Solikin, 2019), social assistance including temporary assistance as part of social security in several countries is part of services in the form of goods or cash. Social assistance can be given directly to community members and social institutions including assistance to non-governmental organizations in the field of education and religion which are not continuous and selective in nature. In 2017 the forms of social assistance in Indonesia were the Family Hope Program, the Smart Indonesia Program, Education Scholarships for Poor and Smart Students, and Beras Sejahtera. Integrated and targeted social assistance can reduce poverty (World Bank, 2017). Research discussing social assistance with poverty includes (Barrientos, 2019) in Asia and The Pacific and (Fuseini, 2018) in Ghana.

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Subsidies are assistance from the government to support people's lives in order to improve the economy. Meanwhile, according to the Central Bureau of Statistics, subsidies cover all assistance in the form of money or goods provided by the government to private companies and government companies. Government subsidy assistance includes fuel subsidies, fertilizers, LPG gas, groceries, and others. Researchers discussing subsidies for poverty alleviation include (Li et al., 2022) in China, (Labeaga, Labandeira, & López-Otero, 2021), (Mulazid & Muflaha, 2019) in Indonesia, and (Solaymani, 2016) in Malaysia.

The total population, according to Said (2012) is the total population that inhabits an area and is the result of demographic processes, namely fertility, mortality, and migration. While Indonesian Central Bureau of Statistics states that residents are everyone who lives in the territory of the Republic of Indonesia for 6 months or more and/or who lives less than 6 months but intends to stay. Population is one of the important elements in economic activity, because the population is a factor of production, and the population provides labor to create economic activity. The availability of the population that is not balanced with the needs of economic activities will cause the population to be unemployed and have no income and ultimately be poor. This condition is a problem in a country. The relationship between population growth and poverty has been widely studied by researchers including (Azizah, Sudarti, & Kusuma, 2018), (Runtunuwu & Tanjung, 2020), (Loka & Purwanti, 2022) and (Mardiyana, 2020) all of which state that population growth has a significant impact against poverty. Besides that, there are research results that state that there is no significant relationship between the population and poverty, such as the results of research from (Sinuraya, Linda Sari, & Lubis, 2021).

### III. RESEARCH METHODOLOGY

This study uses a quantitative descriptive method, which aims to describe systematically, factually, and accurately the factors and characteristics of certain populations or tries to describe phenomena in detail. The object of this research is in West Sumatra Province in the period 2010-2020. The data used in this study are secondary in the form of time-series data with 11 years of observation.

Based on the theoretical basis and the results of previous research, Figure 1 is the conceptual framework of this study.

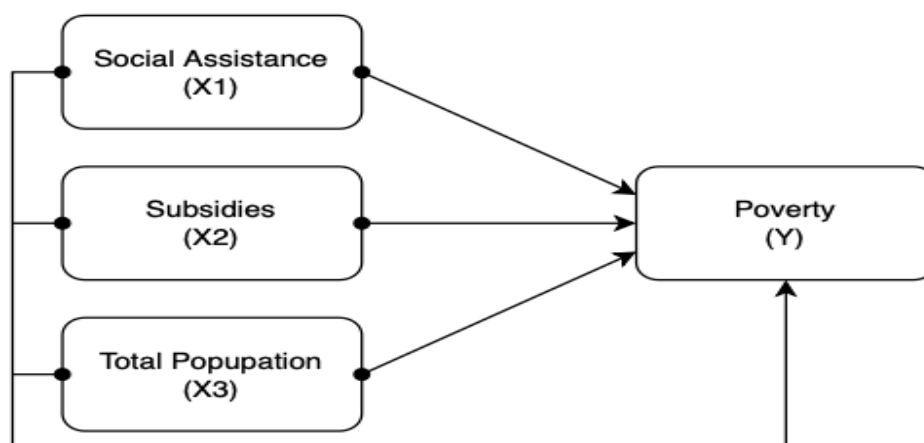


Figure 1. Conceptual framework

The conceptual framework above can explain the analytical techniques to be used. Data analysis techniques used in obtaining the best analysis between the independent and dependent variables are:

1. Descriptive statistics are statistics that are used to analyze data by describing or describing the data that has been collected as it is without intending to make general conclusions or generalizations. And according to Ghazali (2011), descriptive statistics provide an overview of data that can be seen from the average value (mean), standard deviation, variance, maximum, minimum, and others.
2. The classical assumption test aims to provide certainty that the regression equation obtained has accuracy in estimating, is not biased, and is consistent. Testing this classic assumption uses several tests, namely the normality test, multicollinearity test, heteroscedasticity test and autocorrelation test.
3. The coefficient of determination, according to Sugiyono (2017) the coefficient of determination (R<sup>2</sup>) is used to find out how much the ability of the independent variable can explain the dependent variable. Manually the coefficient of determination formula is:

$$Kd = r^2 \times 100\%$$

Kd = coefficient of determination

$r^2$  = correlation coefficient

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4. Multiple Linear Regression Analysis is a statistic that is used to determine how much influence some independent variables have on the dependent variable (Sugiyono, 2014), the multiple linear regression formula is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Y : Poverty

$\alpha$  : Constanta

$\beta_1, \beta_2, \beta_3$  : Regression coefficient

$X_1$  : Sosial Asistance

$X_2$  : Subsidiies

$X_3$  : Total Population

5. Hypothesis testing

- A partial test was carried out to compare the calculated t-value with the t-table. If t-count > t-table with a significant value below 0.05 (5%), then partially or individually the independent variable has a significant effect on the dependent variable, and vice versa.
- Simultaneous testing is carried out to test whether the variables used are significant or not so that it can be ascertained that these variables can predict the effect of all independent variables on the dependent variable. (Ghozali 2011).

## IV. RESULTS AND DISCUSSION

Descriptive data from variable values in this study consist of the dependent variable, namely poverty, and the independent variables, namely subsidized social assistance and population. Based on the results of data processing that has been done, a summary of the results is obtained which can be seen in Table 2 below:

Table 2 Variable Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Sosial Asistance	11	9.90E9	2.63E11	7.5370E10	7.34769E10
Subsiies	11	.00	8.00E9	2.5495E9	2.16963E9
Total Population	11	4.87E6	5.53E6	5.1938E6	2.16038E5
Poor	11	6.35	9.50	7.4455	1.04917
Valid N (Listwise)	11				

Source: processed data

Based on Table 2 above, it is obtained that the mean value is above the standard deviation value with not much distance. This indicates a slight variation in the data. The standard deviation value between -2 and 2 is said to represent the data used.

To obtain the Multiple Linear Regression equation, it can be seen in the following table:

Table 3. Results of Multiple Linear Regression Analysis

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	43.570	6.304		7.429	.000
	Ln_X1	.014	.020	.109	.736	.486
	Ln_X2	.001	.003	.069	.534	.610
	Ln_X3	-2.718	.389	.903	-7.510	.000

a. Dependent Variable: Ln\_Y

Source: processed data



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Table 3 formulates multiple linear regression as follows:

$$\text{Ln}Y = 43,570 + 0.014\text{Ln}X_1 + 0.001\text{Ln}X_2 - 2,718\text{Ln}X_3$$

The results of the multiple linear regression equation above can be analyzed as follows:

1. The constant value shows 43.570 which is positive, this can mean that if social assistance, subsidies, and the population do not change or have a zero value, then the poverty rate that occurs is 43.570.
2. The social assistance regression coefficient is 0.014. This value explains that poverty will increase from each increase in one unit of social assistance, assuming other variables are constant/no change, the magnitude of the increase in poverty due to the increase in social assistance is 0.014. The form of the relationship that occurs between social assistance and poverty is indicated by the value of the regression coefficient of social assistance and the form of the relationship that occurs is inelastic.
3. The subsidy regression coefficient is 0.001. This value explains that poverty will increase for every unit of social assistance spending, assuming that other variables are constant/no change, the magnitude of the increase in poverty due to the increase in subsidies is 0.001, and the form of the relationship that occurs between subsidies and poverty is shown by the value of the regression coefficient of the subsidy and the value of the regression coefficient explains the inelastic relationship.
4. The population variable has a regression coefficient of -2.718 for poverty. This means that if there is an increase in the population by 1 unit, then the poverty rate will also decrease by 2.718 assuming other variables are constant. The form of the relationship that occurs between social assistance and poverty is indicated by the value of the social assistance regression coefficient. The value of the regression coefficient explains the inelastic relationship

Based on Table 1 above, the partial relationship is as follows:

1. Social assistance has a calculated t-value of 0.736 which is smaller than the t-table value of 2.364 and a significant value of the social assistance variable is 0.486 where the greater the significant value  $\alpha = 0.05$ , the conclusion is that social assistance does not have a significant effect on poverty in West Sumatra Province in the 2010-2010 period. This is in line with research (Agustin, 2022), (Melati, Sudrajat, & Burhany, 2021), and (Hasan & Muflia, 2020).
2. Subsidies, the calculated t-value of 0.534 is smaller than the t-table value of 2.364 and the significance value of the subsidy spending variable is 0.610 where the significance value  $\alpha = 0.05$ , it can be concluded that subsidies have no significant effect on poverty in West Sumatra Province in the 2010-2020 period. The results of this study are in line with research (Ramadhan & Mariyanti, 2013) and (Misdawita & Sari, 2018).
3. Total population, the calculated t-value of 7.510 is greater than the t-table value of 2.364 and the significance value of the total population variable is 0.000 less than the significant value  $\alpha = 0.05$ , it can be concluded that the total population has a significant and negative effect on poverty in Sumatra Province West period 2010 -2020. This research is in line with the results of research (Lismana & Sumarsono, 2022) and (Fahjarini & Fahraty, 2020).

Simultaneously, the relationship between the variables of social assistance spending, subsidized aid spending, and the number of people in poverty can be seen in the following table:

Table 3. F-Test

ANOVA <sup>b</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.170	3	.057	34.583	.000 <sup>a</sup>
	Residual	.011	7	.002		
	Total	.182	10			

a. Predictors: (Constant), Ln\_X3, Ln\_X2, Ln\_X1

b. Dependent Variable: Ln\_Y

Source: processed data

Based on table 3 above, shows that the F-value for the regression model is 34.583 which is greater than the F-table value of 4.76, and a significance value of 0.000 which is smaller than the probability value  $\alpha = 0.05$ . It can be concluded that simultaneously the variables of social assistance spending, subsidy spending, and population have a significant and positive effect on poverty in West Sumatra Province for the 2010-2020 period.

The Determinant Coefficient Test ( $R^2$ ) is used to see how much the variation in the influence of social assistance spending, subsidized aid spending, and population to poverty variables can be seen in Table 4 below:

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Table 4. Coefficient of Determination

Model Summary <sup>b</sup>			
Model	R Square	Adjusted R Square	Std. Error of the Estimate
1	.937	.899	.04052

a. Predictors: (Constant), Ln\_X3, Ln\_X2, Ln\_X1

b. Dependent Variable: Ln\_Y

Source: processed data

From the results of Table 4 above, it is obtained that the adjusted  $R^2$  value is 0.899 or 89.9%. This figure states that the dependent variable, namely poverty, can be explained by the independent variables, namely social assistance spending, subsidy spending, and a population of 89.9%. While the remaining 10.1% is explained by other factors.

### V. CONCLUSIONS AND RECOMMENDATIONS

Based on the description and results of the analysis presented above, it can be concluded that: (1) Social assistance has no significant effect on poverty in West Sumatra Province for the 2010-2020 period. (2) Subsidies have no significant effect on poverty in West Sumatra Province for the 2010-2020 period. (3) Total population has a significant effect on poverty in West Sumatra Province for the 2010-2020 period. (4) Simultaneously social assistance, subsidies, and total population have had a significant and positive effect on poverty in West Sumatra Province for the 2010-2020 period. (5) Social assistance, subsidies, and population can affect poverty by 89.9% while the remaining 10.1% is explained by other factors. Based on the above conclusions, the suggestions in this study are as follows :

1. Social assistance must be right on target, namely to people who are truly economically unable to meet their basic needs, so that the benefits of social assistance will have an impact on social life, many studies state that social assistance can alleviate poverty.
2. So that the government provides suggestions for providing subsidies with accurate research and strict supervision so that the budgeted subsidies are right on target for users of subsidies in the field.
3. Population growth must be strictly controlled and population growth must be in harmony with employment growth.

### REFERENCES

- 1) Agustin, L. (2022). Pengaruh Pengangguran, Ipm, Dan Bantuan Sosial Terhadap Kemiskinan Di Provinsi Jawa Timur. *EKONIKA : Jurnal Ekonomi Universitas Kadiri*, 7(2). <https://doi.org/10.30737/ekonika.v7i2.2221>
- 2) Azizah, E. W., Sudarti, & Kusuma, H. (2018). The Influence of Education, Income Per Capita and Population Against Poverty in East Java Province. *Jurnal Ilmu Ekonomi*, 2(1).
- 3) Balvociute, R. (2020). Social assistance for poverty reduction in the EU countries: An aspect of socio-economic sustainability. *European Journal of Sustainable Development*, 9(1). <https://doi.org/10.14207/ejsd.2020.v9n1p469>
- 4) Barrientos, A. (2019). The Role of Social Assistance in Reducing Poverty and Inequality in Asia and The Pacific. *ADB Sustainable Development Working Paper Series No. 62*, (62).
- 5) Fahjarini, E. D. N., & Fahraty, E. (2020). Pengaruh Pertumbuhan Ekonomi, Jumlah Penduduk, dan Inflasi terhadap Kemiskinan di Kota Banjarmasin Tahun 2007-2018. *JIEP: Jurnal Ilmu Ekonomi Dan Pembangunan*, 3(2). <https://doi.org/10.20527/jiep.v3i2.2537>
- 6) Firmansyah, A. D., & Solikin, A. (2019). Impact of Social Assistancess on Poverty and Inequality: Rastra, PIP, and PKH programs in Indonesia. *Jurnal BPPK*, 12.
- 7) Foster, J., Greer, J., & Thorbecke, E. (1984). A Class of Decomposable Poverty Measures. *Econometrica*, 52(3). <https://doi.org/10.2307/1913475>
- 8) Fuseini, M. N. (2018). Social Assistance and Rural Poverty Reduction in the Upper West Region, Ghana. *Unpublished PhD Thesis, University of Cape ...*
- 9) Hasan, N. I., & Mufliha, N. M. (2020). The influence of ZIS fund distribution, social aid shopping, and subsidy shopping to poverty in Indonesia. *Indonesian Journal of Islamic Economics Research*, 2(1). <https://doi.org/10.18326/ijier.v2i1.4296>
- 10) Haughton, J., & Shahidur, R. K. (2009). Handbook on Poverty + Inequality. *The World Bank*, 53(9).
- 11) Khalimah, H. (2017). Pengaruh Pengeluaran Pemerintah, Pengangguran dan Perumbuhan Ekonomi Terhadap Tingkat Kemiskinan di Provinsi Kalimantan Selatan. *Journal of Chemical Information and Medeling*, 53(9), 1689-1699.

## Government Spending, Population, and Poverty

- 12) Labeaga, J. M., Labandeira, X., & López-Otero, X. (2021). Energy taxation, subsidy removal and poverty in Mexico. *Environment and Development Economics*, 26(3). <https://doi.org/10.1017/S1355770X20000364>
- 13) Li, H., Ai, X., Song, H., He, Y., Zeng, X., & Su, J. (2022). Policy of Government Subsidy for Supply Chain with Poverty Alleviation. *Sustainability (Switzerland)*, 14(19). <https://doi.org/10.3390/su141912808>
- 14) Lismana, A. I., & Sumarsono, H. (2022). Analysis of the Effect of Population Growth, Human Development Index and Unemployment Rate on Poverty in West Java Province 2017-2020. *Jurnal Ekonomi Pembangunan*, 20(01). <https://doi.org/10.22219/jep.v20i01.20286>
- 15) Lisna, V., Sinaga, B. M., Firdaus, M., & Sutomo, S. (2013). Dampak Kapasitas Fiskal terhadap Penurunan Kemiskinan: Suatu Analisis Simulasi Kebijakan. *Jurnal Ekonomi Dan Pembangunan Indonesia*, 14(1). <https://doi.org/10.21002/jepi.v14i1.433>
- 16) Loka, R. D. P., & Purwanti, P. A. P. (2022). The Effect Of Unemployment, Education And The Number Of Population On The Poverty Level Of Regency/City In Bali Province. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 6(2). <https://doi.org/10.29040/ijebar.v6i2.5357>
- 17) Mardiyana, L. O. (2020). The effect of population and education on poverty in East Java 2013-2017. In *IOP Conference Series: Earth and Environmental Science* (Vol. 485). <https://doi.org/10.1088/1755-1315/485/1/012126>
- 18) Melati, A. M., Sudrajat, & Burhany, D. I. (2021). The Effects Of Education Expenditure, Health Expenditure And Social Assistance Expenditure On Poverty In Regencies And Cities In West Java. *Indonesian Accounting Research Journal*, 1(3).
- 19) Misdawita, & Sari, A. A. P. (2018). Analisis Dampak Pengeluaran Pemerintah Di Bidang Pendidikan, Kesehatan, Dan Pengeluaran Subsidi Terhadap Kemiskinan Di Indonesia. *Jurnal Ekonomi & Kebijakan Publik*, 4.
- 20) Mulazid, A. S., & Mufliha, N. M. (2019). The Effect Of Distribution Funds Of Zakat Infaq Shadaqah, Social Assistance Expenditure, And Subsidy Expenditure On Poverty In Indonesia. *I-Economics: A Research Journal on Islamic Economics*, 5(1). <https://doi.org/10.19109/https://doi.org/10.19109/ieconomics.v5i1.3689>
- 21) Nurwati, N. (2008). Kemiskinan : Model Pengukuran , Permasalahan dan Alternatif Kebijakan. *Jurnal Kependudukan Padjadjaran*, 10(1).
- 22) Pokrzywa, M. (2020). Families benefiting from social assistance in Poland strategies and barriers to poverty reduction. *European Journal of Sustainable Development*, 9(4). <https://doi.org/10.14207/ejsd.2020.v9n4p199>
- 23) Ramadhan, H., & Mariyanti, T. (2013). Pengaruh Pajak, Subsidi Dan Zis Terhadap Penurunan Kemiskinan Di Indonesia. *Media Ekonomi*, 22(2). <https://doi.org/10.25105/me.v22i2.3170>
- 24) Runtuuwu, P. C. H., & Tanjung, F. (2020). The Effect of Economic Growth and Total Population on Poverty Level in North Sulawesi. *WELFARE Jurnal Ilmu Ekonomi*, 1(1). <https://doi.org/10.37058/wlfr.v1i1.1645>
- 25) Sinuraya, M. B., Linda Sari, R., & Lubis, I. (2021). Analysis of Effects of Economic Growth, Human Development Index, Population, Unemployment and Investment on Poverty Levels in the North Sumatra Province. *International Journal of Research and Review*, 8(12). <https://doi.org/10.52403/ijrr.20211282>
- 26) Solaymani, S. (2016). Impacts of energy subsidy reform on poverty and income inequality in Malaysia. *Quality and Quantity*, 50(6). <https://doi.org/10.1007/s11135-015-0284-z>
- 27) Zhou, Y., & Che, Y. (2021). Research on Government Logistics Subsidies for Poverty Alleviation with Non-uniform Distribution of Consumers. *Omega (United Kingdom)*, 104. <https://doi.org/10.1016/j.omega.2021.102489>



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## Effect of Small Sided Games Training on Anaerobic Endurance and Fatigue Index in U-17 Soccer Athletes



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**ABSTRACT:** Coaches in implementing training programs in an effort to improve the physical condition of their athletes have been done in various ways, one of which is by optimizing anaerobic endurance and fatigue that occurs in athletes. The purpose of this study was to analyze the effect of small-sided games training on anaerobic endurance and fatigue index of U-17 soccer players. This research uses a quasi-experimental approach. The method used the experimental method one group pre-test post-test, the sample design used amounted to 30, with sampling techniques using purposive sampling and data analysis techniques for hypothesis testing using paired sample t test and two-track ANOVA test. This found that there was a significant influence on Small Sided Games training on Anaerobic Endurance and Fatigue Index in U-17 Football Athletes with data on the results of the Small Sided Games training method there was an influence on increasing anaerobic endurance tcount  $9.595 \geq t_{table} 2.144$  and decreasing fatigue index tcount  $5.241 \geq t_{table} 2.144$ . So it can be concluded that the Small Side Games training method has an influence on increasing anaerobic endurance and decreasing fatigue index in U-17 soccer players. However, from the Small Sided Games exercise method in addition to the influence is also very effective for increasing anaerobic endurance and endurance (decreasing fatigue index) more using Small Sided Games exercises.

**KEYWORDS:** Small Sided Games, Durability, Anaerobik, Fatigue Index, Athlete.

### I. INTRODUCTION

Technical, physical and mental aspects become the most serious and important challenges to achieve victory [1]. Especially in a football match. This is because, the performance of an athlete is determined by physical condition, technique, tactics, and mental [2]. Thus conveyed by Bompá & Buzzichelli (2015) that physical condition plays a fundamental role that must be built and developed in football athletes. Therefore, the preparation of technical and motor skills of players and mentality needs to be well prepared [3]. As in the case of football. Careful preparation can determine the results that will be obtained when competing. Football players who have good physical condition, will be more efficient in carrying out tactics in a match. Conversely, if the preparation of physical condition is not perfect, technical, tactical and mental abilities will be affected so that the performance is less than optimal. Thus, physical condition is an important element and becomes the basis / foundation in the development of techniques, tactics, strategies and mental development [4].

Football is a sport of achievement played by 2 teams, each consisting of 11 players and several reserve players. The game of soccer aims to control the ball and put the ball into the opponent's goal as much as possible and try to keep the goal from conceding the ball. Strategies to achieve these goals, then in the sport of football requires practice. Exercise is to give physical emphasis regularly, systematically, and continuously in such a way as to improve the ability to perform work and improve physical fitness or physical ability [5]. The ranking of sports achievements in Indonesia, especially football, is often a concern because it has decreased from year to year. Both in the youth age group and in the senior team. Currently the Indonesian football team is ranked 162nd according to the Federation International Football Association (FIFA). Indonesia's ranking is still below other Asian countries [6]. The decline in the achievements of the Indonesian football national team occurred due to many factors, ranging from coaching that was still not optimal, to the factors of Indonesian football management managed by PSSI (Indonesian Football Association). The factors that influence the decline in the performance of the Indonesian national team must begin to be considered thoroughly, both from the manager and also the players in the national team. One strategy that can be done to improve the achievements of Indonesian football is that athletes play well, according to the direction of the coach, and the training program of the Indonesian national team is well implemented. According to [7] High achievement can only be achieved by training that has been systematically planned, carried out continuously, and under the supervision and professional relationship of the coach.

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According to [8] exercise is to give physical emphasis regularly, systematically, and continuously in such a way as to improve the ability to perform work and improve physical fitness or physical ability. Football is a high-intensity sport where each player must always be ready in match conditions for 2 x 45 minutes with a break between innings of only 15 minutes, so a player must have good physical condition. Football is a sport consisting of technique, tactics, physical and mental, to achieve good performance a player must have these components [9]. In line with other writings that state that, technical, physical and mental aspects become the most serious and important challenges to achieve success [10]. Thus conveyed by Bompá & Buzzichelli (2015) that physical condition plays a fundamental role that must be built and developed in football athletes.

Physical condition is a necessary requirement in an effort to improve athlete performance, it can even be said to be a basic need that cannot be delayed or bargained again. Physical condition is a whole of components that cannot be separated just like that, both improvement and maintenance [11]. Physical condition is a requirement that must be owned by an athlete in improving and developing optimal sports performance, so that all physical conditions must be developed and improved according to the characteristics, characteristics, and needs of each sport [12]. Better physical condition has many advantages including athletes are able and easy to learn new skills that are relatively difficult, not easily tired in participating in training and matches, training programs can be completed without many obstacles, recovery time is faster and can complete relatively strenuous exercises. Given that, the importance of athletes having good physical condition, physical condition training is the main program that must be given in athlete coaching, because it helps athletes to achieve achievements in sports of interest and reduces the risk of injury. In addition, physical condition training is very influential on increasing the confidence of an athlete.

A modern soccer player must demonstrate a high level of endurance, speed, strength and coordination skills. A practical measure of a player's endurance skill evaluation is the length of distance traveled during the game. Elite footballers cover an average total distance of 10–12 km at 80–90% maximum heart rate, perform 150–250 intense activities such as acceleration/deceleration, and change direction with short recovery [12]. The ability to jump, accelerate, and sprint makes an important contribution to the performance potential of a soccer player. About 96% of sprints are shorter than 30 m, and 49% cover only 10 m. Thus, performance at a distance of 10 m or less, and the speed achieved during the first move are considered key indicators of a player's potential [13]. Biomotor components of a football player's physical condition include strength, explosive power, speed, agility, coordination, balance, endurance, flexibility. According to [14] states that the components and classifications of physical abilities in football (men) are (1) strength, (2) muscular endurance, (3) speed, (4) agility, (5) flexibility, (6) power and, (7) cardiopulmonary endurance.

Muscular endurance is the ability of muscles to deal with resistant loads from inside or outside the body so that muscles are able to develop and adapt to fight these resistances. Cardiovascular endurance is divided into aerobic and anaerobic endurance. Aerobic endurance is related to a person's ability to perform activities for a long duration and avoid the opportunity for fatigue. While anaerobic endurance is related to the body's explosive ability to move quickly and repeatedly with interludes of rest periods. A soccer player must have good endurance so as not to easily experience fatigue. This requires players to have excellent aerobic and anaerobic endurance capacity to complete training programs as well as during matches. Anaerobic endurance is an important component in soccer players. According to [15] a person with good anaerobic capacity, will have an efficient heart, effective lungs, good blood circulation, so that the muscles are able to work continuously without excessive fatigue. Good anaerobic endurance is a valuable asset for football players.

Fatigue is a condition in the body that shows a decreased physical and psychological state which causes a decrease in endurance when doing exercise and work activities. According to [16] fatigue is a protective mechanism of the body so that the body avoids further damage so that recovery occurs after rest. Fatigue affects the physiology and psychology of an athlete, which can reduce muscle strength due to the accumulation of lactic acid left over from burning energy. Even fatigue has a negative impact on the body such as discomfort, aches, aches and stiffness on the body, and even affects the motivation, anxiety and concentration of an athlete in training and in matches.

FC UNY Academy is one of the football schools in Yogyakarta. Established in 2017, FC UNY academy is under the same management with UKM Sepak UNY. FC UNY Academy has two class groups, namely U-15 years and U-17 years. FC UNY Academy has participated in several tournaments, both in the Yogyakarta region and outside Yogyakarta. Several tournaments and matches have been participated in, but the FC UNY Academy has not received maximum results. Based on field observations made by the author and coaches, FC UNY Academy suffered defeats in several tournaments, such as in the Soeratin Cup caused by several factors, including physical endurance that was less marked by decreased movement without the ball and teamwork in the second half, easy loss of concentration, and immature training techniques.

The author observes that during the match many players are easily tired, the tactical training that has been given cannot be applied properly during the match, the players still often lose possession of the ball, are not swift in receiving the opponent's attack and often make wrong decisions. This is because, to get high football sports achievements, a team must be formed consisting of

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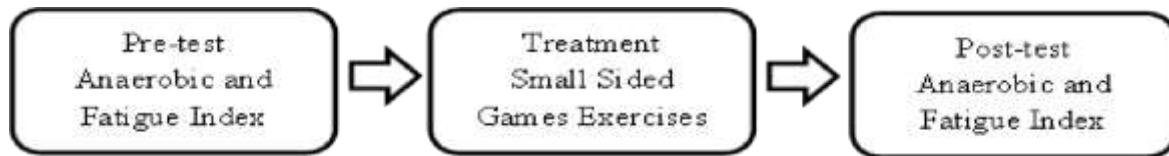
coaches who are able to provide qualified playing and attacking tactics in facing enemies, players who have good aerobic and anaerobic endurance capacity, are able to cooperate, communicate, and have high endurance.

Based on some of the descriptions above, it shows that SSG is a form of exercise that is relevant to the situation in the game. The modified form of training from the number of players, the size of the field and the time of execution can improve the technique, tactics and physique of players. In addition, players are required to always be active in a narrower area so that players have to make decisions faster and execute them.

### II. METHOD

The approach used in this writing is a quasi-experimental approach. This writing uses One Groups pre-test post-test design. Pseudo-experimental writing generally involves two classes, namely the experimental class and the control class, the experimental class is the class that gets the new treatment being investigated. The following is a research design design can be described in the table below.

**Table 1. Research Design Design**



The population in this study was FC UNY U-17 academy players totaling 53 players who were then taken based on purposive sampling techniques. So from the results of purposive sampling, researchers found as many as 30 samples. Furthermore, the instruments used in this writing are the 300-meter Running test and RAST (Runing Anaerobic Sprint Test) to measure Anaerobic Endurance and using the running-based anaerobic sprint test (RAST) the subject completes 6 sets with a distance of about 35 meters with a rest period of 10 seconds between each sprint to measure the Fatigue Index in athletes. Where the data collection technique uses pretest and post test results, and the data analysis technique in this study uses SPSS 20, namely by using twoway ANAVA (two-way ANAVA) at the significance level of  $\alpha = 0.05$ . Before arriving at the utilization of two-way ANAVA (two-way ANAVA), it is necessary to carry out prerequisite tests, which include: (1) normality tests and (2) homogeneity tests. As well as Hypothesis test using two-way ANAVA (two-way ANAVA).

### III. RESULT

The results of the study on the effect of small sided games training method on anaerobic endurance and fatigue index of U17 football players. Found the results below:

**Table 2. Anaerobic Endurance Data Statistics with Small Sided Games Exercise Method**

Respondents	Anaerobic Endurance Group 1 (Pretest)	Anaerobic Endurance Group 1 (Posttest)
<i>Mean</i>	49,83	47,93
<i>Median</i>	48,49	47,15
<i>Mode</i>	47.76	45.66
<i>Std. Deviation</i>	2,47	2,32
<i>Minimum</i>	47,76	45,66
<i>Maximum</i>	54,99	52,85
<i>Sum</i>	747,51	719,00

**Table 3. Anaerobic Endurance Data with Small Sided Games Exercise Method**

Category	Interval	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
<b>Very good</b>	31.80 – 38.95	0	0	0	0
<b>Good</b>	38.98 – 44.59	0	0	0	0
<b>Keep</b>	44.60 – 49.89	9	60	12	80
<b>Less</b>	49.90 – 55.29	6	40	3	20
<b>Very less</b>	55.30 – 60.59	0	0	0	0
<b>Sum</b>		15	100	15	100

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Based on the results of the writing above, the average score during the pretest was 49.83, and the average posttest was 47.93. To determine the magnitude of the increase in anaerobic endurance with the small sided games exercise method in this writing using the percentage increase formula.

$$\text{Peningkatan Persentase} = \frac{1,90}{49,83} \times 100\%$$

$$\text{Peningkatan Persentase} = 3,81 \%$$

Based on the results of the above writing, an increase in the percentage of anaerobic endurance with the small sided games exercise method was obtained by 3.81%.

**Table 4. Anaerobic Endurance Data Statistics with Small Sided Games Exercise Method**

Respondents	RATS Group 1 (Pretest)	RATS Group 1 (Posttest)
<i>Mean</i>	9,89	4,56
<i>Median</i>	10,05	3,49
<i>Mode</i>	2.15 <sup>a</sup>	1.58 <sup>a</sup>
<i>Std. Deviation</i>	4,35	2,86
<i>Minimum</i>	2,15	1,58
<i>Maximum</i>	18,67	13,12
<i>Sum</i>	148,40	68,43

**Table 5. Anaerobic Endurance Data with Small Sided Games Exercise Method**

Norm	Category	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
0 – 4	Very good	1	6,67	8	53,33
4,1 – 10	Good	6	40	6	40
10,1 – 15	Keep	6	40	1	6,67
15,1 – 20	Less	2	13,33	0	0
> 20	Very less	0	0	0	0
<b>Sum</b>		15	100	15	100

Based on the results of the writing above, the average score during the pretest was 9.89, and the average posttest was 4.56. To determine the magnitude of the increase in fatigue index with the small sided games training method in this writing using the percentage increase formula.

$$\text{Peningkatan Persentase} = \frac{5,33}{9,89} \times 100\%$$

$$\text{Peningkatan Persentase} = 53,88 \%$$

From the results of the study above, an increase in the percentage of fatigue index with the small sided games exercise method was obtained by 53.88%.

**Table 6. Normality Test**

	Variable	p	Sig.	Information
<b>Research Data</b>	Small Sided Games (Anaerobic Endurance) Exercise	0,074	0,05	Usual
	Small Sided Games Exercise (Fatigue Index)	0,236	0,05	Usual

From the table above, it shows that the significance value (p) of all variables is greater than 0.05, so the data is normally distributed. Since all data is normally distributed, the analysis can be continued with parametric statistical analysis.

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**Table 7. Homogeneity Test**

F	df1	df2	Sig.
3,981	3	56	0,064

Based on the table data above, a significant level value (0.064) > 0.05 is obtained so that it can be concluded that variance is homogeneous.

**Table 8. Paired Sample t Test Hypothesis Test**

<i>Pretest – posttest</i>	df	t <sub>tabel</sub>	t <sub>hitung</sub>	P	Sig 5 %
<b>Anaerobic endurance</b>	14	2,144	9,595	0,000	0,05
<b>Fatigue index</b>	14	2,144	5,241	0,000	0,05

Based on the results of the analysis of table 11, for anaerobic endurance data, a calculated t<sub>value</sub> of 9.595 ≥ t<sub>table</sub> 2.144 was obtained, meaning that there was an effect of the small sided games training method on increasing the anaerobic endurance of U-17 players. The results of the t-test analysis on the fatigue index obtained a calculated t<sub>value</sub> of 5.241 ≥ t<sub>table</sub> 2.144, meaning that there is an influence of the small sided games training method on the improvement and fatigue index of U-17 players.

### IV. DISCUSSION

The SSG training method is a training method carried out by dividing players into small groups, usually around 3-6 players [17]. Each group will play on a small field with predetermined rules of play, such as the number of players, field size, playing time, and so on. The purpose of this method is to improve the technical and tactical skills of players in real game situations. Anaerobic endurance is the body's ability to maintain high-intensity physical activity over a relatively short period of time, which is about 30 seconds to 2 minutes [18]. Meanwhile, the fatigue index is a measure used to evaluate the body's level of fatigue at the time of physical activity [19]. The fatigue index can be measured in various ways, such as by measuring blood lactate levels or by using the Rating of Perceived Exertion (RPE) scale.

Several papers have been done to examine the effect of SSG exercise methods on improving anaerobic endurance and fatigue index. One of the relevant writings is that done by [20]. This writing involved 22 football players aged 14-15 years who were divided into two groups: the SSG group and the control group. The SSG group exercised with the SSG method for 8 weeks, while the control group exercised with the conventional method. The results showed that the SSG group experienced a significant increase in anaerobic endurance and decreased fatigue index than the control group.

Another relevant study was conducted by [21] This writing involved 12 futsal players who were divided into two groups: the SSG group and the control group. The SSG group did exercises with the SSG method for 4 weeks, while the control group did exercises with conventional methods. The results showed that the SSG group experienced a significant increase in anaerobic endurance and decreased fatigue index than the control group.

The SSG training model is one of the training methods created using games [22]. SSG training requires a player to constantly perform movements so that anaerobic abilities will improve [23]. In order to be able to reach it all and be able to feel the results. By performing movements in a game, players are trained to maintain their endurance so that they will have good endurance during the match [24]. SSG itself is a commonly used training method in football training This exercise requires players to move dynamically [25]. The benefits of SSG training methods in football include increasing cardiovascular endurance [26].

### V. CONCLUSION

Based on the calculation of hypothesis 1 analysis using the t test obtained on endurance obtained the value of t count (9.595) ≥ t<sub>table</sub> (2.144), and on the fatigue index obtained the value of t count (5.241) ≥ t<sub>table</sub> (2.144), based on these results it is interpreted that there is an influence of SSG exercise methods on increasing anaerobic endurance and fatigue index of players. The choice of the SSG method is highly recommended, because the method accommodates all the conditions of the real football game when competing, so the application of this method causes training adaptations that greatly affect the ability of players in matches. Along with increasing cardiovascular or cardiopulmonary endurance, it can reduce the fatigue index in football players.



### REFERENCES

- 1) A. Alafgani, T. Rustiadi, J. Pendidikan, J. Kesehatan, and D. Rekreasi, "Pengaruh Metode Passing Triangle dan Metode Small Side Game terhadap Ketepatan Passing Siswa Akademi Sepak Bola Satria Kencana Serasi KU 14 Kabupaten Semarang Tahun 2020," *Indones. J. Phys. Educ. Sport*, vol. 2, no. 1, pp. 78–83, 2021, [Online]. Available: <https://journal.unnes.ac.id/sju/index.php/inapes/article/view/43979>
- 2) M. Sutristian and A. Komaini, "Perbedaan Pengaruh Latihan Small Side Game Dan Latihan Lingkaran Pinball Terhadap Keterampilan Passing," *J. Stamina*, vol. 47, no. 4, pp. 124–134, 2021, doi: 10.31857/s013116462104007x.
- 3) A. A. Yudi, "Pengaruh Latihan Small Sided Game Terhadap Keterampilan Passing Siswa SMAN 4 Sumbar," *J. Cerdas Sifa*, no. 2, pp. 1–8, 2019, [Online]. Available: <https://online-journal.unja.ac.id/csp/article/view/8002%0A>
- 4) D. M. Alkhadaaf and I. Syafii, "Pengaruh Latihan Diamond Pass Dan Small Side Game Terhadap Ketepatan Passing Sepakbola Pada Ssb Rokat Fc U-14 Sidoarjo," *J. Prestasi Olahraga*, vol. 2, no. 3, pp. 1–6, 2019.
- 5) A. N. Putra, H. Lawanis, F. 'ala, and R. Bahtra, "Efektivitas Model Latihan Small Sided Games Terhadap Peningkatan Keterampilan Teknik Dasar Sepakbola Siswa Ssb Usia 12 Tahun," *Sport. Saintika*, vol. 7, no. 1, pp. 111–120, 2022, doi: 10.24036/sporta.v7i1.218.
- 6) E. T. Kusuma, "Pengaruh Latihan Small a Side Games Terhadap Peningkatan Vo2max," *S1 Pendidik. Kepelatihan Olahraga, Fak. Ilmu Olahraga, Univ. Negeri Surabaya*, vol. 1, no. 1, pp. 1–6, 2020.
- 7) R. D. Pra Rudiana and A. F. Prasetyo, "Pengaruh Latihan Small Side Games Terhadap Keterampilan Bermain Bola," *Biomatika J. Ilm. Fak. Kegur. dan Ilmu Pendidik.*, vol. 6, no. 02, pp. 132–137, 2020, doi: 10.35569/biormatika.v6i02.819.
- 8) M. Sudaryoto, T. Rahayu, and S. Rahayu, "Model Penilaian Kemampuan Bermain Sepakbola dalam Small Side Game bagi Pemain Usia Muda," *J. Phys. Educ. Sport.*, vol. 6, no. 1, pp. 72–75, 2017, [Online]. Available: <http://journal.unnes.ac.id/sju/index.php/jpes>
- 9) A. Muzaffar and A. Saputra, "Pengaruh Latihan Small Sided Game Terhadap Akurasi Passing Pada Siswa Ekstrakurikuler Futsal Smp Negeri 1 Muaro Jambi," *Indones. J. Sport Sci. Coach.*, vol. 1, no. 2, pp. 81–88, 2019, doi: 10.22437/ijssc.v1i2.7605.
- 10) Y. M. Wea, "Pengaruh Latihan Small Side Games Terhadap Kelincahan Pada Permainan Sepakbola," *J. Penjakora*, vol. 7, no. 1, p. 11, 2020, doi: 10.23887/penjakora.v7i1.24212.
- 11) A. S. Baskoro, "Pengaruh Latihan Small Side Game Terhadap Kebugaran Jasmani Siswa Peserta Ekstrakurikuler Sepakbola Di Smp Negeri 1 Pakem, Sleman Tahun 2016," *J. Penelit. Pendidik. Guru Sekol. Dasar*, vol. 6, no. August, p. 128, 2016.
- 12) A. Malik, M. N. Hasibuan, and N. Nurkadri, "Pengaruh Variasi Latihan Small Side Games terhadap Kemampuan Passing Sepakbola Pemain Usia 11-13 Tahun SSB TASBI Tahun 2021," *J. Speed (Sport, Phys. Educ. Empower.*, vol. 5, no. 01, pp. 1–7, 2022, doi: 10.35706/jurnalspeed.v5i01.6505.
- 13) R. Roni, A. Risyanto, and I. N. Haris, "Pengaruh Latihan Small-Sided Games Terhadap Ketepatan Umpan (Passing) Pada Pemain Sepak Bola Mahardika FC," *Biormatika*, vol. 4, no. 2, pp. 218–226, 2018.
- 14) Z. A. Fitriani, "Pengaruh Latihan Small Sided Games Dan Latihan Rondo Terhadap Ketepatan Passing Pada Pemain Klub Futsal Aldifa Banjarmasin," *JSES J. Sport Exerc. Sci.*, vol. 5, no. 2, pp. 50–58, 2022, doi: 10.26740/jses.v5n2.p50-58.
- 15) G. Rizaldi, M. Yunus, and S. Supriyadi, "Pengaruh Latihan Small Sided Game Terhadap Peningkatan Vo2Max Pada Pemain Sekolah Sepakbola (Ssb) Iguana Kicker Club (Ikc) Fc Usia 11-12 Tahun," *J. Sport Sci.*, vol. 9, no. 1, p. 30, 2019, doi: 10.17977/um057v9i1p30-38.
- 16) A. Karim, "Pengaruh Latihan Small Sided Games Terhadap Peningkatan Ketepatan Passing Dengan Kaki Bagian Dalam Pada Siswa Peserta Ekstrakurikuler Sepakbola Mts Ali Maksum Bantul," *J. Act. Sport*, pp. 1–8, 2018.
- 17) A. T. Arianto and C. Setyawan, "Efektivitas small sided games dan interval training terhadap peningkatan daya tahan aerobik pada pemain sepakbola U-17," *J. Keolahragaan*, vol. 7, no. 2, pp. 182–191, 2019, doi: 10.21831/jk.v7i2.27039.
- 18) A. U. K. Putra, I. N. Sudjana, and F. Amiq, "Pengaruh Latihan Small Sided Games Terhadap Peningkatan Kemampuan Vo2Max Pemain Sepakbola U-17 Di Persatuan Sepakbola Smuba Junior Kota Batu," *J. Pendidik. Jasm.*, vol. 25, no. 1, pp. 20–30, 2016.
- 19) D. R. Saputra and R. Yenes, "Pengaruh Bentuk Latihan Small-Sided Games Terhadap Peningkatan VO2Max Pemain SSB Tan Malaka," *J. Patriot*, no. 2018, pp. 482–492, 2019.
- 20) A. Rizki, "Pengaruh Pelatihan Small Sided Games Terhadap Peningkatan Kapasitas Aerobik Maksimal Dan Keterampilan Dribbling Pada Pemain Sepakbola," *Biormatika J. Ilm. Fak. Kegur. Dan Ilmu Pendidik.*, vol. 5, no. 01, p. 56, 2019, doi: 10.35569/biormatika.v5i01.414.
- 21) A. Saputra and Bafirman, "Pengaruh Latihan Small Side Game Terhadap Peningkatan Vo2max Pemain Sepakbola Persis," *J. Stamina*, vol. 4, no. April, pp. 181–182, 2021.
- 22) R. Festiawan, P. J. Nurcahyo, and H. J. Pamungkas, "Pengaruh Latihan Small Sided Games Terhadap Kemampuan Long Pass pada Peserta Ekstrakurikuler Sepakbola," *Unnes.ac.id*, vol. 9, no. 1, pp. 18–22, 2019.

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- 23) A. N. Putra, H. Lawanis, and R. Bahtra, "Efektivitas Latihan Small Side Games Terhadap Keterampilan Shooting Siswa SSB Usia 12 Tahun," *J. Sport Sainika*, vol. 7, no. 1, pp. 111–120, 2022, doi: 10.24036/Sporta.
- 24) M. Z. Mubarok and D. O. Mudzakir, "Pengaruh Latihan Small Sided Games Terhadap Peningkatan Keterampilan Dribbling Pemain Sepakbola," *J. Pendidik. Olahraga*, vol. 9, no. 1, p. 28, 2020, doi: 10.31571/jpo.v9i1.1381.
- 25) M. Z. Mubarok, "Pengaruh Latihan Small Sided Games Menggunakan Metode Interval Terhadap Peningkatan Dribbling Pemain Sepakbola," *Biomatika J. Ilm. Fak. Kegur. dan Ilmu Pendidik.*, vol. 5, no. 02, pp. 144–149, 2019, doi: 10.35569/biormatika.v5i02.513.
- 26) K. Kasan, R. Gustiawati, and B. Ismaya, "Small Side Games Terhadap Peningkatan Kebugaran Jasmani Peserta Ekstrakurikuler Sepakbola SMPN 2 Cilamaya Kulon," *J. Literasi Olahraga*, vol. 1, no. 1, pp. 1–7, 2020, doi: 10.35706/jlo.v1i1.3940.



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## Effect of the Snake and Ladder Game on Behavior and OHI-S Index of Deaf Children



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**ABSTRACT:** Deafness in children is one of the obstacles in gaining knowledge about dental and oral health. It also has an impact on attitudes and behavior of maintaining dental health. Therefore, dental health education accompanied by the right tools is needed to help in conveying information to deaf children in order to ensure the message is received clearly. This research aims to determine the effect of dental health education on the behavior and index of dental and oral hygiene of deaf children by using snake and ladder game. Methods: A quasi-experimental method with a non-randomized control group pre and post-test design was used, while 123 students aged 10-12 years were taken as a sample from 3 Special Schools in the Region of Yogyakarta, Indonesia. The variables measured were the behavior of maintaining dental health and the Oral Hygiene Index Simplified (OHI-S). Afterward, data were analyzed using the Wilcoxon and the Mann-Whitney tests. Results: The results of the Wilcoxon test showed that there were significant differences in dental health maintenance behavior and the OHI-S index in the treatment group ( $p < 0.05$ ). While the Mann-Whitney test showed significant differences between the treatment and control groups ( $p < 0.05$ ). Conclusions: The snake and ladder game are able to improve dental and oral health maintenance behavior as well as reduce the OHI-S index in deaf children.

**KEYWORDS:** dental health education, snake and ladder game, behavior, OHI-S index

### I. INTRODUCTION

Children with special needs are often faced with dental and oral hygiene problems because they have limitations and are not able to fully utilize all their physical, mental, and social abilities (Ningrum, et al., 2021). The categories of these children include visually impaired, mentally retarded, physically handicapped, autism, and multiply handicapped. In Indonesia, the age ranges and respective percentages of the children with special needs include, 5-9 years old (2.5%), 10-14 years old (3.5%), and 15-17 years old (4.2%) (Kementerian Kesehatan RI, 2019).

Generally, deafness is when someone experiences verbal communication disorders due to partial or complete loss of hearing (Veriza, et al., 2020), while speaking disorders is difficulties in communicating. However, deaf people are able to communicate optimally by using the sense of sight (Alphianti and Rahma, 2021). In fact, this category of people has their language for communicating, known as sign language, which is often gotten through education. This communication is either expressive, which is the ability to produce a language that is understood by others, or receptive, which is being able to understand the intentions (Sadimin, et al., 2018).

To improve dental and oral health, the understanding and knowledge of these children need to be increased. This is because, Knowledge often causes changes in a person's attitudes and behavior, and eventually have an impact on everyday life. For example, providing dental health education influences human behavior, and stir up the desire to change for the better (Almoslem, 2021). When the knowledge, attitudes, and behavior towards the maintenance of dental and oral hygiene are better, the oral health status will also be better (Fukuhara, 2020).

To increase the knowledge of deaf children in maintaining oral and dental health, it is necessary to carry out dental health education by selecting the right media which are classified into two, namely traditional and modern. One of the traditional games commonly played by children is the snake and ladder. This game is a cooperative play that is cheap and easy where children learn to work together and compete healthily, thereby helping children to socialize with their peers and learn while playing (Labibah, 2015).

Based on this background, research needs to be carried out to determine the effect of dental health education with the snake and ladder game method on children's behavior as well as dental and oral hygiene index of the deaf.

# Effect of the Snake and Ladder Game on Behavior and OHI-S Index of Deaf Children

## II. METHODS

The quasi-experimental method with non-randomized control group pre-test and post-test design was used in this research, and the changes observed include dental health maintenance behavior and OHI-S. A total sampling of 123 deaf children was taken according to the research criteria. Furthermore, informed consent is given by parents or guardians concerning their approval or refusal for the children to participate in the activities from beginning to the end without any coercion.

In this research, the sample was divided into 2 groups, namely the treatment and control. The treatment entails the children who are educated through the snake and ladder game which is often played by at least one child using a computer program. When the dental health is well maintained, the player goes up the stairs to a higher level and get a reward, known as the state of healthy teeth and mouth. However, when behaves badly, toothache penalty is gotten and the score goes down following the snake's head to its tail. On the other hand, the control group entails the children who receive dental health education through lectures accompanied by pictures.

This implementation of dental health education was carried out 3 times, for 15 minutes on the following days, namely 1, 5, and 10. The aim of this repetition is to ensure that the information conveyed is reinforced and stored in long-term memory to deepen understanding (Dini,2021). Furthermore, the variables include 1) children's behavior concerning dental and oral health maintenance which was measured using a questionnaire consisting of 10 question items. These behavioral scores are described as low when it is between 0-5 and high when it is between 6 - 10. 2) Oral hygiene is measured based on the Simplified Oral Hygiene Index known as OHI-S (Green and Vermilion), which include components of the debris and calculus index using a 0-3 scale. In addition, the tooth surfaces measured include: 1.6 and 2.6 on the buccal surface, 1.1 and 3.1 on the labial, 3.6 and 4.6 on the lingual. The OHI-S scoring criteria is categorized as good when the score is between 0.0 - 1.2, moderate when it is between 1.3 - 3.0, and bad when it is between 3.1 - 6.0. Additionally, measurement of behavior and OHI-S index was carried out 1 day before (pre-test) and the 15<sup>th</sup> day after dental health education (post-test).

Hence, the normality test was carried out using the Kolmogorov-Smirnov in both pre-test and post-test groups and a p-value < 0.05 was obtained, thereby showing that the data is not normally distributed. Based on the result, Wilcoxon is used for the pre and post-test analysis in one group, while the Mann-Whitney is used in two groups.

## III. RESULTS

The research shows that 57 deaf respondents are in the treatment group, while 56 are in the control group. Table 1 provided the data on the respondent characteristics. The data on the respondent characteristics are as follows:

**Table 1. Description of the respondent characteristics**

Characteristics	Criteria	Treatment		Control	
		N	%	N	%
Gender	Male	32	56.14	28	50
	Female	25	43.86	28	50
Age	9-10 years old	35	61.40	31	55.36
	11-12 years old	32	38.60	25	44.64
Parental education	Elementary School	6	10.53	4	7.14
	Junior High School	24	42.11	23	41.07
	Senior High School	21	36.84	24	42.86
	College	6	10.52	5	8.93
Work	Private employees	28	49.12	31	55.36
	Civil Servant/Army/Police	9	15.79	6	10.71
	Entrepreneur	12	21.05	13	23.21
	Farmer/fisherman	3	5.26	1	1.79
	Freelance	5	8.78	5	8.93

The descriptions of respondents in the treatment group were mostly male (56.14%) with age 9-10 years (61.40%), having parental education at Junior High School (42.11%) and private employees (49.12%). Meanwhile, in the control group, the average respondents were male and female (50%), aged 9-10 years (55.36%), with parental education at Senior High School (42.86%) and private employees (55.36%).

The results of the oral and dental health behaviour in the treatment group are shown in Table 2.

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**Table 2. The results of pre-test and post-test behavior in the treatment group**

Variable	Mean+SD	p-Value*
Behavior on pre-test	4.61+1.61 (low)	0.000
Behavior on post-test	8.11+1.64 (high)	

According to Table 2, the mean behaviour of the pre-test treatment was 4.61 + 1.61 in the low category, while the post-test is in the high category with 8.11+1.64. Hence, the results of the Wilcoxon test in the treatment group showed a significant difference in behavior with p-Value = 0.000 ( $p < 0.05$ ).

The differences in the control group are determined by using the Wilcoxon test as shown in Table 3.

**Table 3. The results of pre-test and post-test behavior in the control group**

Variable	Mean+SD	p-Value*
Behavior on pre-test behavior on post-test	6.64+2.59 7.63+2.30	0.062

Based on Table 3, the distribution of pre-test behaviour in the control group was 6.64 + 2.59 in the high category, while post-test is 7.63 + 2.3. By using the Wilcoxon test, a p-value of 0.62 was obtained which showed no significant behavioural difference from p-value = 0.062 ( $p > 0.05$ ).

The results of the Wilcoxon test in determining the OHI-S index pre-test and post-test in the treatment group are shown in Table 4.

**Table 4. The results of OHI-S pre-test and post-test in the treatment group**

Variable	Mean+SD	p-Value*
OHI-S index on pre-test	2.84+0.97 (moderate)	0.000
OHI-S index on post-test	1.12+0.6 (low)	

Table 4 shows that the average OHI-S index in the control group with 2.84 + 0.9 is in the moderate category, while the post-test is in the low category of 1.12 + 0.40. The results showed that there was a significant difference in the OHI-S index with p-Value = 0.000 ( $p < 0.05$ ).

The results of the OHI-S index measurement in the control group are shown in Table 5.

**Table 5. Results of the OHI-S index pre-test and post-test in the control group**

Variable	Mean+SD	p-Value*
OHI-S index on pre-test	2.16+0.83 (moderate)	0.058
OHI-S index on post-test	1.88+0.98 (moderate)	

The results in Table 5 show that the OHI-S index pre-test and post-test in the control group are moderate, namely 3.16 + 0.83 and 1.88 + 0.98. Also, the Wilcoxon test showed that there was no significant difference in the OHI-S index pre-test and post-test with p-value = 0.058 ( $p > 0.05$ ).

The results of the Mann-Whitney test in Table 6 are in accordance with the one of Wilcoxon in Table 3, which shows that there is a significant difference between the pre-test and post-test behavior of maintaining dental health in the treatment and control groups with p-value = 0.004 ( $< 0.05$ ).

**Table 6. Different test results in the treatment and control groups**

Variable	Z	p-Value (sig)*
Dental health maintenance behavior	-2.848	0.004
OHI-S Index	-6.290	0.000

## IV. DISCUSSION

From Table 2, there is an increase in the behaviour of deaf children because the snake and ladder game is equipped with interesting pictures and not too dense writings which are related to the counselling content and message conveyed. Each column has a different colour, thereby making the game to be more enticing to the children (Atika and Suyadi, 2021). Basically, the snake and

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ladder is an educational game that is used to learn how to concentrate in dealing with problems, socialize with playmates, develop children's intellectuals such as counting, as well as learn shapes and sizes. Furthermore, this game is usually carried out among groups of children who are able to regulate their behaviour, assess their abilities, etc. (Rikawarastuti, et al., 2018). In delivering the material, guidance needs to be provided on how to play as well as attractive rewards should be given in order to make the children more enthusiastic about understanding the material provided. This game was created as a stimulus to increase children's motivation in absorbing behaviours about dental and oral diseases obtained during the process (Fauziah, et al., 2020). Consequently, most respondents have a supportive attitude towards dental and oral health because the post-test counselling is carried out by using illustrated stories as well as snake and ladder games (Atika and Suyadi, 2021).

Based on Table 3, the distribution of pre-test behaviour in the control group was no significant difference. This is in accordance to previous research, which describes that deaf people are slower than normal children in the process of reading comprehension. Similarly, the understanding process of using sign language, pictures, and writing takes longer because it must be expressed in real terms through motion or directly with easy-to-understand language (Agusta and Firdausy, 2014). Table 4 showed that there was a significant difference in the OHI-S index in the treatment group, with p-Value = 0.000 ( $p < 0.05$ ). Hence, the games' materials which include brushing teeth, choosing healthy foods for dental health, and having regular dental checkups with the dentist helps to improve the children knowledge and behavior (Srinivasan, 2019). For example, they were able to understand the importance of maintaining healthy teeth and mouth, specifically the importance of brushing teeth. Therefore, children who have the habit of brushing their teeth twice a day by using a manual toothbrush have an impact on a low dental and oral hygiene index (Alyafei, et al., 2020).

According to the Table 5, there was a significant difference in the OHI-S index in the control group, with p-Value = 0.000 ( $p < 0.05$ ). That is because the educational media lectures accompanied by pictures are less effective in increasing knowledge and behaviour. In addition, there is no increase in the dental and oral hygiene index, hence, the information received by deaf children, specifically about dental and oral health, is not captured optimally, thereby forming an inappropriate behaviour as well as affecting dental and oral hygiene (Kantohe, et al., 2016)

The OHI-S index criteria in this control group are moderate, probably because the child's saliva is mucus and high volume, thereby leading to self-cleansing and reduction in debris accumulation (Merić, et al., 2020). Saliva helps to prevent plaque and calculus by maintaining the balance of ion exchange on the tooth surface (Lee, et al., 2021). The composition of saliva contains calcium, fluorine, phosphate, sodium, potassium, chloride, and bicarbonate. Also, the consistency of food increases the flow and buffering capacity of saliva which causes the bicarbonate content to be high, thereby having an impact on dental hygiene (Abbas, et al., 2020).

Table 6 shows that that there is a significant difference between the pre-test and post-test behavior of maintaining dental health in the treatment and control groups. This is probably because different media often affects the level of children's mindset in understanding the content. For example, deaf children are more interested in educational media in the form of games because it involves an interaction with their playmates (Nur, et al., 2015). Also, the effectiveness of dental health education is influenced by the use of appropriate methods to the targeted group. Therefore, the factor that the audience uses frequently affects the understanding and improvement of the target's behavior, and also changes the behavioral patterns and habits for the better (Kantohe, et al., 2016).

The senses obtained by most respondents from this education are through vision, and were given direct counseling because they are deaf. Hence, choosing a method of direct dental health education helps to improve children's understanding by practicing directly, for example how to brush teeth (Fauziah, et al., 2020). The snake and ladder game is in line with the cognitive development of children with ages 8-11 years old, thus, they accept its objective reason and logic. Furthermore, their activities in playing are more controlled by the rules of the game (Atika and Suyadi, 2021). Therefore, this visual-based learning media in the form of a snake and ladder game is an effective medium to increase absorption and understanding of lessons, specifically the discussions that are difficult to accept without media intermediaries. It also improves the behavior, attitudes, and practices towards dental and oral health as well as the application of how to brush teeth properly and correctly (Rikawarastuti, et al., 2018).

## V. CONCLUSIONS

Conclusively, dental health education with snake and ladder games is able to improve dental health maintenance behavior and reduce the OHI-S index in deaf children. Moreover, further research needs to add measure variables in order to compare with other audio-visual media.

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### ACKNOWLEDGMENTS

The authors would like to thank to the Director of Health Polytechnic of the Ministry of Health Yogyakarta Indonesia for providing the research funding.

**Conflicts of Interest:** The authors declare no potential conflict of interest

### REFERENCES

- 1) Abbas MJ, Al-Hadithi HK, Mahmood MA, Hussein HM. Comparison of some salivary characteristics in iraqi children with early childhood caries (Ecc) and children without early childhood caries. *Clin Cosmet Investig Dent*. 2020;12:541-550. doi:10.2147/CCIDE.S275963
- 2) Agusta R MV, AK AI, Firdausy MD. Hubungan pengetahuan kesehatan gigi dengan kondisi. *Medali J*. 2014;2(1):64-68.
- 3) Almoslem MM, Alshehri TA, Althumairi AA, Aljassim MT, Hassan ME, Berekaa MM. Handwashing Knowledge, Attitudes, and Practices among Students in Eastern Province Schools, Saudi Arabia. *J Environ Public Health*. 2021;2021. doi:10.1155/2021/6638443
- 4) Alphianti LT, Rahma FTA. Perbedaan Tingkat Pemahaman Pengetahuan pada Anak Tunarungu antara Penyuluhan Metode Komik dan Video. *Insisiva Dent J Maj Kedokt Gigi Insisiva*. 2021;10(1):32-38. doi:10.18196/di.v10i1.11245
- 5) Alyafei NA, Naaz B, Jaleel F, Mathew T. Knowledge, Attitude and Behavior Towards Oral Health Care Among Parents / Caregivers of Children with Disabilities in Qatar. *Med Clin Res*. 2020;5(10):251-257. doi:10.33140/mcr.05.10.01
- 6) Atika Setiawati F, Suyadi. Penerapan Strategi Pembelajaran Melalui Permainan Ular Tangga Tantangan Dalam Meningkatkan Perkembangan Kognitif Pada Anak Usia Dini. *J Buah Hati*. 2021;8(1):49-61. doi:10.46244/buahhati.v8i1.1274
- 7) Dini NN, Agustin ED, Amurwaningsih M. Permainan Ular Tangga Meningkatkan Pengetahuan Kesehatan Gigi dan Mulut Anak Disabilitas Rungu. *Insisiva Dent J Maj Kedokt Gigi Insisiva*. 2021;10(1):1-6. doi:10.18196/di.v10i1.9566
- 8) Fauziah R, Putri S, Wiyatini T, Hadisaputro S. Development of Magic Paper Models to Improve Dental Health Behavior among Children with Elementary School Level. 2020;3(6):654-661.
- 9) Fukuhara D, Ekuni D, Kataoka K, et al. Relationship between oral hygiene knowledge, source of oral hygiene knowledge and oral hygiene behavior in Japanese university students: A prospective cohort study. *PLoS One*. 2020;15(7 July):1-13. doi:10.1371/journal.pone.0236259
- 10) Kantohe ZR, Wowor VNS, Gunawan PN. Perbandingan efektivitas pendidikan kesehatan gigi menggunakan media video dan flip chart terhadap peningkatan pengetahuan kesehatan gigi dan mulut anak. *e-GIGI*. 2016;4(2):7-12. doi:10.35790/eg.4.2.2016.13490
- 11) Labibah, A. Pengaruh Permainan Ular Tangga Modifikasi Terhadap Pengetahuan Kesehatan Gigi dan Mulut Pada Anak. *Medali J*. 2015;2(1):1-4.
- 12) Lee E, Park S, Um S, et al. Microbiome of saliva and plaque in children according to age and dental caries experience. *Diagnostics*. 2021;11(8):1-17. doi:10.3390/diagnostics11081324
- 13) Meriç E, Bolgöl B, Duran N, Ay E. Evaluation of oral streptococci in saliva of children with severe early childhood caries and caries-free. *Eur J Paediatr Dent*. 2020;21(1):13-17. doi:10.23804/ejpd.2020.21.01.03
- 14) Mitiche A, Ayed I Ben. Basic methods. *Springer Top Signal Process*. 2011;5:33-58. doi:10.1007/978-3-642-15352-5\_3
- 15) Ningrum V, Bakar A, Shieh TM, Shih YH. The oral health inequities between special needs children and normal children in Asia: A systematic review and meta-analysis. *Healthc*. 2021;9(4). doi:10.3390/healthcare9040410.
- 16) Nur Laili Siyam S, Nurhapsari A, Benyamin B. Pengaruh Stimulasi Permainan Ular Tangga Tentang Gingivitis Terhadap Pengetahuan Anak Usia 8-11 Tahun Studi terhadap Siswa SD Negeri Kuningan 04, Kecamatan Semarang Utara. *ODONTO Dent J*. 2015;2(1):25. doi:10.30659/odj.2.1.25-28.
- 17) Pusat Data dan Informasi Kementerian Kesehatan RI. Situasi Disabilitas. *Pus Data dan Inf Kementerian Kesehat RI*. Published online 2019:1-10.
- 18) Rikawarastuti R, Ngatemi N, Yusro M. Development of web-based dental health ladder snake game for public elementary school students in indonesia. *World J Educ Technol Curr Issues*. 2018;10(1):20-28. doi:10.18844/wjet.v10i1.3327
- 19) Sadimin, Ningtyas EAE, Yodong. the Relation of Parents' Behaviour on Dental Health Toward Their Deaf Children'S Oral Health Status: Case Study in Sdlb Abc Swadaya Kaliwungu Kendal. *J Kesehat Gigi*. 2018;05(1):30-37.
- 20) Srinivasan K. Snake and Ladder Games in Cognition Development on Students with Learning Difficulties. *Indian J Dent Adv*. 2019;10(4):160-170. doi:10.5866/2018.10.10160

## Effect of the Snake and Ladder Game on Behavior and OHI-S Index of Deaf Children

- 21) Veriza E, Riyadi S, Seisaria W. Perbedaan Penyuluhan Kesehatan Gigi Menggunakan Media Gambar dengan Video dalam Meningkatkan Perilaku Menyikat Gigi pada Anak Tunarungu di SLB Negeri 1 Kota Jambi. *J Dunia Kesmas*. 2020;9(4):457-462. doi:10.33024/jdk.v9i4.2368



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## Influence of Transformational Leadership on Risk-Based Pricing Model: A Case of Kenya Commercial Banks within Nairobi County



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**ABSTRACT:** This study investigated the impact of transformational leadership on commercial banks' implementation of the risk-based pricing model in Nairobi County, Kenya. While the Kenyan government, through the Central Bank of Kenya (CBK), has advocated for its usage, many commercial banks are still wary. The study examined the impacts of idealized influence, intellectual stimulation, customized consideration, and inspirational motivation, and was based on transformational leadership and arbitrage pricing theories. Using a cross-sectional descriptive research design, data was collected from 234 credit managers from various commercial bank tiers within Nairobi County, employing a stratified sampling technique. The data collection involved the administration of closed-ended questionnaires, and the collected data was analysed using SPSS version 25. The findings revealed that all the transformational leadership dimensions significantly and positively influenced risk-based pricing model ( $p < 0.05$ ). These results indicated that employing transformational leadership strategies can foster a culture of risk-taking and encourage risk-based pricing in commercial banks.

**KEYWORDS:** Transformational Leadership, Idealized Influence, Intellectual Stimulation, Individualized Consideration, and Inspirational Motivation, Risk-Based Pricing

### I. INTRODUCTION

Commercial banks implement credit risk management systems to reduce loan losses due to the disparity in information between lenders and borrowers which make commercial banks susceptible to moral hazard and adverse selection (Mohapatra et al., 2016). Risk-based pricing is a method of determining interest rates to be charged on loans or credit based on the risk profile of a particular borrower or a class of borrowers (McCoy, 2007). In order to fulfil the needs of minority and low-income households, risk-based pricing has been implemented in various parts of the world, including the United States (Pham & Donovan, 2021).

To improve lending practices and manage credit risk, the Central Bank of Kenya (CBK), which introduced Credit Reference Bureaus in 2010, is now pushing banks toward risk-based pricing model based on existing CRB data, credit scores, and commercial banks' internal customer data (Getenga, 2021). To manage risk and attract more customers, commercial banks can use risk-based pricing to offer personalized interest rates to customers based on their specific risk profile (Staten, 2015). Application of risk-based pricing model may have far reaching benefits to both commercial banks and their clients because it provides consumers with better access to capital at lower rates while also assisting banks in effectively predicting and accounting for risk. Consumers who reduce their risk receive lower prices and greater access. Furthermore, as their risk profiles improve, consumers can request that their existing rates be reviewed or shop around for better rates from other banks (Getenga, 2021). According to the State of the Banking Industry Report of 2020, six banks had implemented risk-based pricing model.

In order to evaluate borrowers' creditworthiness and determine their risk profile, banks employ a variety of techniques. Guidelines for risk-based pricing have been released by CBK, which call for use of internal customer profile data, credit scoring in addition to credit bureau data. Application of risk-based pricing is expected to improve lending efficiency by allowing banks to better manage credit risk and set interest rates that are more reflective of borrowers' risk profiles. This is expected to lead to more accurate credit pricing, which benefits both borrowers and lenders (Getenga, 2021).

In a commercial banking context, shifting from arbitrage pricing model to risk-based pricing model can be challenging because it requires a significant shift in mindset and approach from traditional methods (Mohapatra et al., 2016). This can be especially true for employees who have been using the same pricing model for many years and may be resistant to change. This underscores the place of leadership in causing the necessary transformation. For an organization to succeed, its leadership must guide the team to greater heights even during tough moments.

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Transformational leadership is currently receiving a lot of attention due to its ability to use the most important resource - the human resource - to achieve the organization's goals (Ismail et al., 2011). This leadership style is distinguished by a leader's ability to communicate a clear vision, provide individualized consideration, and instil intellectual stimulation in followers (Nawaz & Khan, 2016). Transformational leaders convert individual needs in an organization into collective interests (Adams, 2018; Conrad, 2018; Korejan & Shahbazi, 2016).

According to Maina and Maina (2018), transformational leadership can be extremely important in effecting change such as the movement of commercial banks from arbitrage pricing model to risk-based pricing model in the context of commercial banking. Transformational leaders inspire and motivate their teams to think creatively and take calculated risks, which can lead to a more open attitude towards a new pricing model as such leaders are able to communicate to employees the benefits of such changes (Bass & Riggio, 2006). A study conducted in Kenya by Kamau and Ogutu (2020) revealed that commercial banks with leaders who had used transformational leadership demonstrated improved performance over time. The study concluded that there is a strong positive relationship between commercial banks performance and transformational leadership. In other organizations, the leadership style has been linked to higher employee performance (Louw et al., 2017; Nyamota, 2020). Subordinates and employees' willingness to support and implement change is also influenced by the leadership style (Deschamps et al., 2016; Hechanova & Cementina-Olpoc, 2012; Uddin, 2013).

In Kenya, transformational leadership has been linked to higher employee performance in banks and other organizations (Louw et al., 2017; Kamau, 2020; Nyamota, 2020). Transformational leadership has also been associated with higher levels of performance and effectiveness in the banking sector (Gonnah & Ogollah, 2016; Kirui, 2016). However, researchers have not studied the role of transformational leadership on risk-based pricing in Kenya's banking sector. Thus, there have been limited published studies on the impact of transformational leadership on risk-based pricing model. This study therefore sought to investigate what influence transformational leadership has on risk-based pricing model by commercial banks within Nairobi County.

### **A. Statement of the Problem**

The Kenyan government has long been advocating for the implementation of a risk-based pricing model by commercial banks. Despite the Central Bank of Kenya's (CBK) efforts and the recognized benefits of this approach, its application in Kenya is notably slow and is still in its early stages. The Kenyan banking sector has displayed reluctance in revising its loan pricing strategies to reflect borrowers' creditworthiness. A 2018 CBK study found that most Kenyan commercial banks still favor the arbitrage pricing model over the risk-based pricing model.

Interestingly, the sluggish application of the risk-based pricing model by Kenyan commercial banks has rarely been explored from a leadership perspective. In an effort to fill this knowledge gap, this study delved into the facets of transformational leadership and their influence on risk-based pricing model implementation within commercial banks in Nairobi County. It aimed to ascertain whether transformational leadership could be a driving force behind the application of risk-based pricing models.

The findings enhance the existing body of knowledge by affirming the presence of transformational leadership within Kenya's commercial banks and its implications on risk-based pricing model application. Furthermore, the study identifies specific transformational leadership traits that Kenyan commercial banks should adopt to effectively implement risk-based pricing. This work not only underscores the role of leadership in influencing strategic banking practices but also offers insights into leveraging transformational leadership to stimulate risk-based pricing model application.

## **II. LITERATURE REVIEW**

### **A. Theoretical Framework**

This research was primarily based on the Transformational Leadership theory, supported by the Arbitrage Pricing Theory.

#### **1) Transformational Leadership Theory:**

The Transformational Leadership theory asserts that leaders can inspire and motivate followers to exceed expected performance and can also stimulate and encourage creativity and innovation (Northouse, 2018). It provides a valuable framework for analyzing how distinctive leadership traits can influence the successful adoption of risk-based pricing models in commercial banks. The theory provided a framework for understanding how leaders can influence and drive the successful implementation of a risk-based pricing model in commercial banks within Nairobi County. By adopting transformational leadership behaviours, leaders can inspire, motivate, and empower their employees, fostering a culture of innovation, commitment, and adaptability, which are crucial for effectively implementing and leveraging the benefits of a risk-based pricing approach.

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## **2) Arbitrage Pricing Theory:**

This theory asserts that the expected return of a financial asset can be modelled as a linear function of various macroeconomic variables, where sensitivity to changes in each factor is represented by a factor-specific beta coefficient (Ross, 1976). This insight is essential for comprehending the prevailing loan pricing strategies of Kenyan banks.

The relevance of this theory to this study was that with technological advancement today, banks are able to predict what was unpredictable a few years ago and hence pricing model today are more accurate, predictive and reliable hence the need for banks to abandon the old APT model and adopt risk-based pricing model, aided by technological advancements such as blockchain. Zhang et al., (2020), found out that blockchain technology can be used to confirm ownership of data, integration of data, enhanced data security, protection of personal information and more especially in credit reference.

## **B. Empirical Literature Review**

### **1) Transformational Leadership:**

Transformational leadership is a leadership style that impacts both individuals and social systems. It aims to promote valuable and positive change in followers, eventually nurturing them into leaders (Kamau & Ogotu, 2020). Transformational leaders enhance followers' motivation, morale, and performance through a variety of techniques, such as understanding followers' strengths and weaknesses, serving as a role model, challenging followers to take greater ownership of their work, and connecting a follower's sense of self to the organization's mission and collective identity (Seyal, 2015; Kittikunchotiwut, 2020).

Notable scholars, including Bass and Avolio (2013), Goleman (1998), Antonakis (2012), Burns (2010), Mittal (2015), and Njiraini et al., (2017), have highlighted four elements of transformational leadership: individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence. Each of these elements has been shown to have a significant influence on followers and organizational performance (Ogola et al., 2017; Cardona et al., 2018; Nyakomitta et al., 2018; Njiraini et al., 2018).

### **2) Risk-Based Pricing Model:**

The risk-based pricing model is a loan pricing strategy that takes into account the borrower's creditworthiness to determine the loan price (Staten, 2015). According to this model, high-risk borrowers pay a higher interest than low-risk borrowers do for the same type of loan. This pricing strategy is largely dependent on credit reports and scores from Credit Reference Bureaus (CRBs), which provide a more accurate estimation of default risks (Kagan et al., 2020).

Application of the risk-based pricing model offers various benefits, such as fairness to all customers, potential for increased economic activity, and encouragement for customers to improve their credit scores (Berger et al., 2019; CCCM, 2021). To adopt this model effectively and profitably, commercial banks need to make changes in their reporting systems, risk-rating systems, and loan approval processes (Othieno & Kariuki, 2017). However, despite the potential advantages, the Kenyan banking sector has been slow in transitioning from traditional arbitrage pricing models to risk-based pricing.

### **3) The Impact of Transformational Leadership on Risk-Based Pricing Model:**

Drawing from transformational leadership theory and its elements, the study sought to understand how transformational leadership elements influence the application of the risk-based pricing model in commercial banks within Nairobi, Kenya. In particular, the study explored how individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence can play a role in promoting a shift from traditional arbitrage pricing model to risk-based pricing.

## **C. Conceptualization and Hypothesis**

Drawing from the literature review on Transformational Leadership and the Risk-Based Pricing model, it's evident that transformational leadership can be instrumental in driving the successful implementation of a risk-based pricing model in commercial banks within Nairobi County. By embodying transformational leadership behaviours, leaders have the potential to inspire, motivate, and empower their employees, fostering a culture that embraces innovation, commitment, and adaptability. These traits are integral to effectively implementing and leveraging the benefits of a risk-based pricing model. Transformational leaders bear the responsibility for shaping an environment conducive to the adoption of innovative practices, like risk-based pricing. Effective transformational leadership can facilitate organizational change, foster an atmosphere of trust, stimulate intellectual curiosity, and enable the workforce to overcome the inertia of traditional practices.

Based on the thorough examination conducted in this study, a conceptual framework was proposed to predict the influence of transformational leadership on risk-based pricing model in commercial banks within Nairobi County. This framework posits that transformational leadership, through its dimensions of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, can impact effective implementation of the risk-based pricing model.

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The study aimed to answer the following research question:

**Question 1:** What is the combined Influence of Transformational Leadership elements on Risk-Based Pricing Model by Commercial Banks within Nairobi County?

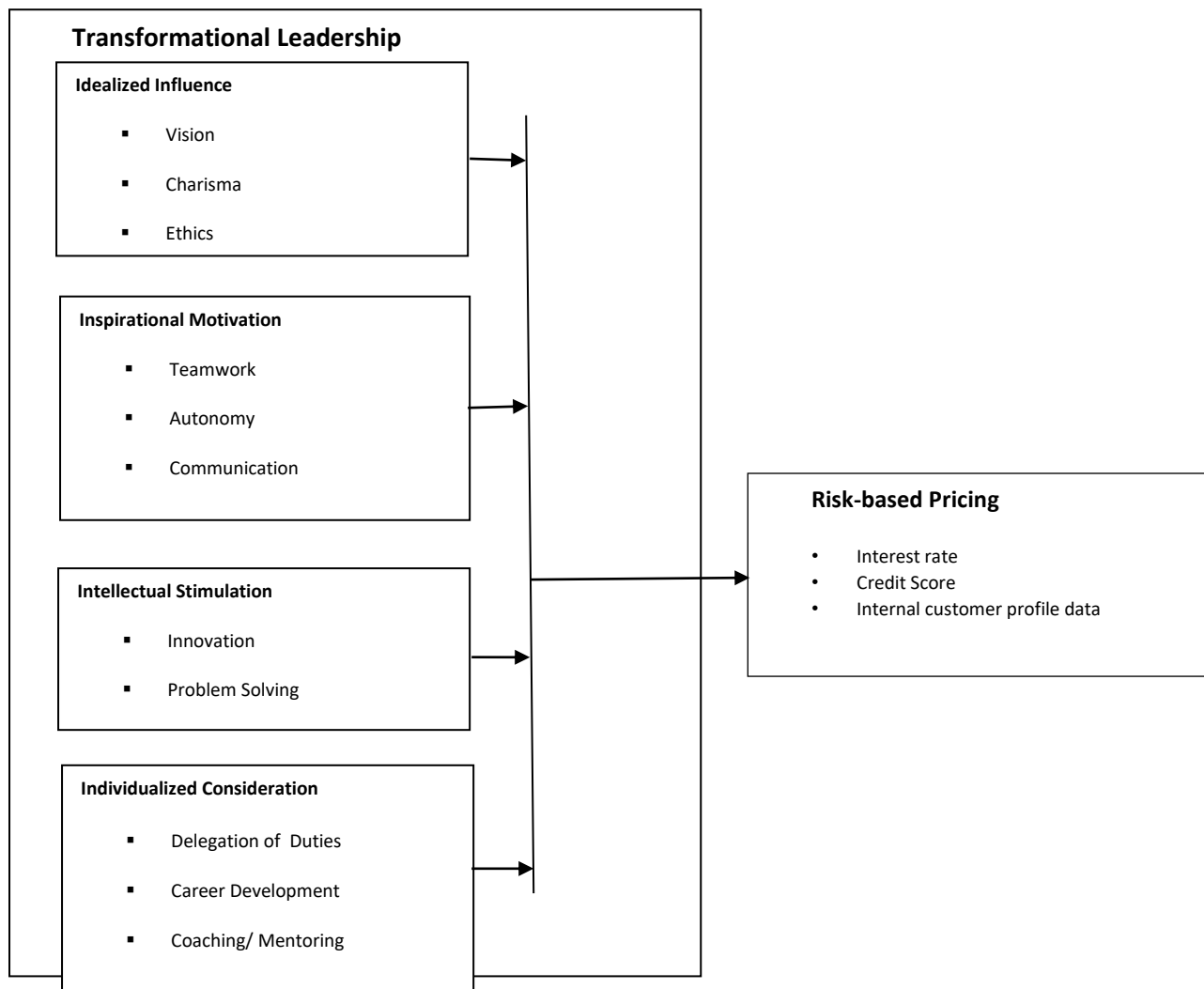


Figure 1. Conceptual Framework

### III. RESEARCH METHODOLOGY

This research adopted a positivistic approach, utilizing across-sectional descriptive design. This design is valuable as it allows for a detailed examination of the current state of phenomena without the need for variable manipulation. The approach was particularly suited to our study as it facilitated a quantitative exploration of the relationship between transformational leadership and risk-based pricing model within commercial banks in Nairobi County. This design choice enabled us to gather comprehensive information on the topic, enhancing our scientific understanding of this important interplay within the banking sector.

#### A. Target Population and Sampling Technique

The target population for this study comprised 564 bank managers from commercial banks within Nairobi County. These bank branches were all providers of financial services and are homogeneous, thus making all managers from these branches suitable for the study. The focus was placed on credit managers, as they are the critical implementers of the loan pricing model. The commercial banks fell into three categories: Tier 1, Tier 2, and Tier 3 (Faria, 2022). Data was collected from a stratified random sample of 234 respondents. Stratified sampling was deemed appropriate for this study as it ensured adequate representation of each stratum within the sample and helped mitigate potential sampling bias. To organize the population into distinct strata,

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bank branches were classified based on their respective tiers. After classification, the sample size for each stratum was determined in proportion to its size within the population.

**Table I. Sample Size Distribution**

Strata	Stratum Size	Sample Size
Tier 1	305	126
Tier 2	105	44
Tier 3	154	64
<b>Total</b>	<b>564</b>	<b>234</b>

## B. Research Data and Analysis

Data was collected using a questionnaire composed of closed-ended questions that leveraged a Likert scale response format. The sample comprised 234 credit managers, identified as critical implementers of the loan pricing model. Prior to the main survey, a pre-test was conducted involving 10 operational managers selected across the four banks, taking into account their geographical distribution across Nairobi. This preliminary test served to assess the comprehension and validity of the questionnaire. The pre-test results were excluded from the final analysis. The questionnaire underwent rigorous content and construct validity evaluation, aided by the expertise of university supervisors. Additionally, criterion-related validity testing was performed, comparing the questionnaire results with known criteria such as previous research findings or expert opinions. Reliability of the questionnaire was assessed using Cronbach's alpha coefficient, with values between 0.7 and 1.0 considered acceptable. In this case, a coefficient of 0.758 was obtained, indicative of high internal consistency and reliability of the instrument. Following the data collection, thorough editing was carried out to address any inconsistencies or missing values. The data was then transformed into numerical values for analysis using the SPSS Version 25 software. Descriptive statistics (mean, frequencies, standard deviation, percentages) were calculated for each variable, with results presented in tabular format for clarity and comparability. Inferential analysis involved the calculation of the coefficient of determination (R<sup>2</sup>) to evaluate the model's validity and assess the degree to which variations in transformational leadership account for variations in risk-based pricing. The overall significance of the model was evaluated using the F-statistic at a 95% confidence level. P-values were used in answering research questions with a preset significance level of 0.05 to determine the acceptance or rejection of the questions. Before conducting inferential analysis, the data underwent several diagnostic tests, including normality assessment, linearity examination between variables, and multicollinearity evaluation. The results of these tests are presented in Table II below.

**Table II. Diagnostics Test Results**

Diagnostic Test	Test	Observation	Conclusion Based on Observation
<b>Normality</b>	Shapiro-Wilk Tests	P>0.05	Normally Distributed
<b>Linearity</b>	Pearson Correlation	P<0.05	Linearly Related
<b>Multicollinearity</b>	Variance Inflation Factor	VIF<10	No Severe Multicollinearity

## IV. RESEARCH FINDINGS

### A. Response Rate

Out of 234 questionnaires disseminated to the participants, 203 were returned, indicating a response rate of 86.8%. This response rate exceeds the 60% threshold suggested by Mugenda & Mugenda (2003) as satisfactory for analysis. The specifics of the response rate are displayed in Table III below.

**Table III. Response Rate**

Category	Freq	%
<b>Response</b>	203	86.8
<b>Non-Response</b>	31	13.2

### B. Respondents Demographics Characteristics

Gender representation among the study participants was nearly balanced, with males comprising 51.2% and females 48.8%. The age distribution was as follows: 45.8% were aged between 36-40 years, 24.4% were between 41-45 years, 14.78% fell in the 31-35 years bracket, 10.34% were above 45 years, and 4.93% were below 30 years. The study showed that 69.46% of participants

## Influence of Transformational Leadership on Risk-Based Pricing Model: A Case of Kenya Commercial Banks within Nairobi County

held undergraduate degrees and 28.57% had postgraduate qualifications. The majority of participants (55.67%) boasted of more than 15 years of experience in the banking sector.

### C. Descriptive Statistics

The descriptive statistics summary was according to table IV below.

**Table IV. Descriptive Statistics Summary**

Variable	No. of Items	Reliability Statistics	Aggregate Mean	Aggregate Std. Deviation
Idealized Influence	5	0.723	3.834	0.8474
Inspirational Motivation	6	0.779	3.633	0.870
Intellectual Stimulation	5	0.719	3.572	0.892
Individualized Consideration	7	0.746	3.504	0.76
Risk-Based Pricing	14	0.825	3.67	0.861

This section provides a thorough overview of the data set by creating summary statistics that highlight significant patterns and trends. Measures of central tendency and dispersion were used to provide a thorough overview of the dataset as presented in table IV.

Idealized Influence, gauged through five items, displayed a reliable internal consistency with a Cronbach's alpha of 0.723. The participants exhibited a relatively high degree of Idealized Influence, with a mean score of 3.834 and a standard deviation of 0.8474 indicating moderate variance in responses. Inspirational Motivation, assessed via six items, demonstrated a commendable internal consistency (Cronbach's alpha of 0.779). Participants' responses reflected a moderate level of Inspirational Motivation, averaging at 3.633, with a standard deviation of 0.870, suggesting a reasonable dispersion of responses. The variable Intellectual Stimulation, encompassing five items, achieved a good internal consistency (Cronbach's alpha of 0.719). Participants recorded a moderate average score of 3.572, demonstrating reasonable Intellectual Stimulation. The standard deviation of 0.892 suggested a fair spread in responses. The Individualized Consideration variable, measured through seven items, held a strong internal consistency (Cronbach's alpha of 0.746). With a mean score of 3.504, it signified a moderate level of Individualized Consideration among participants. The relatively low standard deviation of 0.76 implied a lesser degree of variance in responses. Risk-Based Pricing, assessed using 14 items, showcased high internal consistency (Cronbach's alpha of 0.825). The standard deviation of 0.861 conveyed a moderate level of variance in responses.

### D. Inferential Statistics

To gain a better understanding of how transformational leadership elements collectively influenced risk-based pricing, a regression analysis was conducted. The results of this analysis were presented in several subsections, including the model summary, the ANOVA table, and the table of coefficients. The model summary gives an overview of the regression model and how well it explains the variability in the dependent variable (i.e., risk-based pricing).

**Table V. Model Summary**

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Model
1	.583a	.340	.326	.44446		1

According to the findings shown in Table V, a significant positive linear association was discovered between the independent and dependent variables of the study ( $R = 0.583$ ). The coefficient of determination ( $R^2 = 0.340$ ) suggests that 34% of the variance observed in the dependent variable can be attributed to the independent variables employed in the model, while the remaining variance is accounted for by other variables not included in the model.

Table VI below indicates that the regression model was significant, with an F-statistic of 20.566 and a p-value of less than 0.001. This suggests that the model was effective in predicting risk-based pricing based on the transformational leadership elements, and that the independent variables collectively had a significant influence on the dependent variable.

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**Table VI. The Anova Model**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	20.107	4	5.027	25.446	.000 <sup>b</sup>
Residual	39.113	198	.198		
Total	59.220	202			

The coefficients table presents the computed regression coefficients and corresponding p-values for each independent variable (i.e., transformational leadership elements). The coefficient table was according to Table VII.

**Table VII. Coefficients Table**

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
	Std. Error			
1 (Constant)	1.110		2.601	.010
Idealized Influence	.155	.130	2.166	.031
Inspirational Motivation	.302	.265	4.063	.000
Intellectual Stimulation	.296	.260	4.011	.000
Individualized Consideration	.334	.374	5.641	.000

The regression results in Table VII above confirm that all four dimensions of transformational leadership - idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration - significantly and positively impact risk-based pricing. Consequently, these findings provide a robust answer to the research question on the influence of transformational leadership elements on the risk-based pricing model, enhancing our understanding of leadership's role in driving effective banking practices.

### E. Discussion of the Findings

The findings indicate that transformational leaders who prioritize inspiring and intellectually stimulating their employees while demonstrating individualized consideration and ethical leadership can positively influence commercial banks' risk-based pricing. These leadership qualities can help create a culture of ethical decision-making, clear vision, and goal setting within the organizations, which can lead to improved performance and greater acceptance of risk-based pricing practices. This confirms the findings of a study by Kirui, (2017) which revealed that transformational leadership had been associated with higher levels of performance and effectiveness in the banking sector in Kenya.

The study's findings also provide empirical evidence supporting the consistency between the four elements of transformational leadership and Transformational Leadership theory. They validate the theory's propositions regarding the influential role of transformational leadership behaviors in driving organizational outcomes and aligning with the goals of the risk-based pricing model in commercial banks. According to Transformational Leadership theory, transformational leaders have a significant positive impact on their followers and organizations by inspiring and motivating them to achieve higher levels of performance (Burns, 2010; Mittal, 2015). They do this by exhibiting behaviors such as setting a positive example (idealized influence), stimulating creativity and critical thinking (intellectual stimulation), showing individualized care and support (individualized consideration), and inspiring and motivating followers to reach their full potential (inspirational motivation). The findings of the study align with these key principles of Transformational Leadership theory. The significant and positive influences of idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation on the risk-based pricing model indicate that when leaders exhibit these transformational behaviors, they can effectively drive the implementation and success of the model within commercial banks. The findings demonstrate that transformational leadership behaviors have a statistically significant impact on the risk-based pricing model, reinforcing the importance of these leadership elements in guiding and motivating employees towards achieving organizational goals.

The multivariate linear regression model employed demonstrated a significant relationship between the transformational leadership elements (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) and risk-based pricing. Although the study primarily focused on transformational leadership and its influence on risk-based pricing, it is worth noting the conceptual connections between our findings and arbitrage pricing theory. Arbitrage pricing theory posits that the expected return of an asset is determined by its exposure to various systematic risk factors (Ross, 1976). Similarly, our

## **Influence of Transformational Leadership on Risk-Based Pricing Model: A Case of Kenya Commercial Banks within Nairobi County**

study examined the impact of transformational leadership elements on risk-based pricing, which can be seen as an indicator of the systematic risk associated with a bank's pricing decisions.

While our study did not directly apply the principles of arbitrage pricing theory, there are parallels in terms of understanding the relationship between variables and their influence on pricing outcomes. The coefficients assigned to the transformational leadership elements in our regression model can be viewed as analogous to factor sensitivities in arbitrage pricing theory, representing the strength and direction of their impact on risk-based pricing.

### **V. CONCLUSION AND RECOMMENDATIONS**

This study aimed to rigorously assess the role of transformational leadership in influencing the risk-based pricing model adopted by commercial banks in Nairobi County. Several salient conclusions have been deduced from the empirical findings.

Concerning idealized influence, the study discerned varied perspectives on aspects of organizational leadership, such as charismatic leadership, employee morale, and goal setting. Notably, a significant portion of respondents acknowledged the presence of a well-defined organizational vision, believed to be a catalyst for enhanced performance. Ethical considerations also featured prominently within these institutions.

The data presents ambivalent views about intellectual stimulation in the commercial banks. While there was a consensus on fostering innovation and problem-solving, there was divergence on other aspects like endorsing calculated risks, participatory leadership, and critically revisiting decisions.

For individualized consideration, findings suggest that the leadership in these banks supports employees' career aspirations and is accessible. However, more intricate facets like effective delegation, coaching, mentorship, and career advisory garnered more neutral responses, indicating potential areas for improvement.

On the topic of inspirational motivation, results indicated a general agreement on its positive influence on teamwork, communication, and goal alignment. Yet, opinions varied concerning the level of autonomy granted by the leadership.

In a quantitative lens, all transformational leadership dimensions exhibited a significant positive correlation with the risk-based pricing model: idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation.

In summation, transformational leadership components demonstrated a substantial positive influence on risk-based pricing. However, nuanced variances in perceptions across various dimensions underscore the complexity of leadership practices in the banking sector of Nairobi County.

Based on the findings, the study recommends a number of actions to promote use of risk-based pricing in Nairobi County commercial banks. Policymakers should prioritize leadership development programs that emphasize the four key factors of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, as these can foster a culture of risk-based pricing acceptance. Banks should train their employees to better understand risk-based pricing and its benefits, as well as raise awareness of the positive impact of leadership factors in facilitating implementation of risk-based pricing strategies.

Furthermore, policymakers should encourage commercial banks to collaborate in order to share best practices and experiences related to risk-based pricing, which can spur innovation and improve overall implementation. Additionally, banks should also make the most of customer data to personalize loan terms, raise customer satisfaction, and make unbiased lending decisions. By continuously monitoring and evaluating the impact of risk-based pricing on customer satisfaction, loan terms, and profitability, banks can make necessary adjustments to their strategies to ensure they are meeting customer needs and organizational goals. Whereas the study objectives have been achieved and the managerial as well as policy implications are evident, the exclusion of insights from bank customers as key stakeholders is a limitation that opens ground for future research directions.

### **ACKNOWLEDGEMENTS**

I am immensely grateful to my Supervisor Dr. Mulinge for his patience, corrections, remarks, counsel, advice, guidance, and assistance, all of which have been instrumental in completing this article. His guidance and resources have played a significant role in my journey, and I am deeply appreciative of their contributions.

### **REFERENCES**

- 1) Adams, D. (2018). *Mastering theories of educational leadership and management*. University of Malaya Press.
- 2) Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership*. Lawrence Erlbaum Associates.
- 3) Conrad, C. A. (2018). *Business ethics- a philosophical and behavioral approach*. Springer International Publishing, AG.
- 4) Getenga, J. (2021). *Impacts of COVID-19 on credit reporting systems- Kenya's case study*.



## Influence of Transformational Leadership on Risk-Based Pricing Model: A Case of Kenya Commercial Banks within Nairobi County

- 5) Gonnah, B. J., & Ogollah, K. (2016). Effect of transformational leadership on performance of commercial banks in Kenya: case of Family Bank Limited. *International Journal of Innovation, Leadership and Entrepreneurship*, 2(1): 1-25
- 6) Hechanova, G., & Cementina-Olpoc, R. (2012). Transformational leadership, change management, and commitment to change: a comparison of academic and business organizations. *The Asia-Pacific Education Researcher*, 22(1): 11-19
- 7) Ismail, A., Mohamed, H. A. B., Sulaiman, A. Z., Mohamad, M. H., & Yusuf, M. H. (2011). An empirical study of the relationship between transformational leadership, empowerment, and organizational commitment. *Business and Economics Research Journal*, 2(1), 89.
- 8) Kamau, A. W. (2020). *Transformational leadership and performance of commercial banks in Kenya*. [http://erepository.uonbi.ac.ke/bitstream/handle/11295/153823/Kamau\\_Transformational%20leadership%20and%20performance%20of%20commercial%20banks%20in%20Kenya.pdf?sequence=1&isAllowed=y](http://erepository.uonbi.ac.ke/bitstream/handle/11295/153823/Kamau_Transformational%20leadership%20and%20performance%20of%20commercial%20banks%20in%20Kenya.pdf?sequence=1&isAllowed=y)
- 9) Kirui, J. K. (2016). *Role of transformational leadership in organizational performance of state-owned banks in Kenya*. <http://ir.jkuat.ac.ke/bitstream/handle/123456789/2399/Kirui%2C%2C%20bbn%20John%20Kiplelei%2C%20PhD%20%28H%20RM%29%2C%202016.pdf?sequence=1&isAllowed=y>
- 10) Korejan, M., & Shahbazi, H. (2016). An analysis of the transformational leadership theory. *Journal of Fundamental and Applied Sciences*, 8(3), 452.
- 11) Louw, L., Muriithi, S., & Radloff, S. (2017). The relationship between transformational leadership and leadership effectiveness indigenous banks. *SA Journal of Human Resource Management*, 15(7)
- 12) Maina, J. K., & Maina, J. M. (2018). Transformational leadership and adoption of risk-based pricing model in commercial banks: Evidence from Kenya. *Journal of Economics and International Finance*, 10(3), 60-69.
- 13) McCoy, P. A. (2007). Rethinking disclosure in a world of risk-based pricing. *Harv. J. on Legis.*, 44, 123.
- 14) Mohapatra, K. K., & Sahoo, S. (2016). Risk-based pricing and its impact on the banking industry. *International Journal of Bank Marketing*, 34(2), 205-220. Goleman, D. (1998). *Working with Emotional Intelligence*. Bantam.
- 15) Nawaz, Z. A. K. D. A., & Khan, I. (2016). Leadership theories and styles: A literature review. *Leadership*, 16(1), 1-7.
- 16) Njiraini, A.N., K'Aol, G.O. and Linge, T.K., 2018. Influence of Individualized Consideration on Job Satisfaction among Employees in Commercial Banks in Kenya. *Journal of Human Resource and Leadership*, 3(3), pp.1-13.
- 17) Nyamota, G. (2020). CEO transformational leadership styles and performance of SMEs: A literature review, Kenya. *The International Journal of Humanities & Social Studies*, 8(5)
- 18) Northouse, P. G. (2018). *Leadership: Theory and practice* (8th ed.). Sage Publications.
- 19) Pham, N., & Donovan, M. (2021). The economic benefits of risk-based pricing for historically underserved consumers in the United States.
- 20) Staten, M. (2015). Risk-based pricing in consumer lending. [https://www.centerforcapitalmarkets.com/wpcontent/uploads/2013/08/CCMC\\_RiskBasedPricing\\_FINAL\\_to\\_post\\_10\\_24\\_2014.pdf](https://www.centerforcapitalmarkets.com/wpcontent/uploads/2013/08/CCMC_RiskBasedPricing_FINAL_to_post_10_24_2014.pdf)
- 21) Uddin, M, H. (2013). Role of transformational leadership in organizational change: mediating role of trust. *Journal of Business and Management*, 7(2): 72-76.



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## Operationalizing Transformational Leadership Components: Impact on Commercial Banking Strategies in Nairobi County



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**ABSTRACT:** In Nairobi County's dynamic banking milieu, effective leadership remains paramount. Grounded in transformational leadership theory, this study delved into the impact of transformational leadership on strategic commercial banking adaptations. Utilizing a cross-sectional descriptive approach, insights were garnered from 234 credit managers across different tiers in Nairobi, selected via a stratified sampling technique. Results underscored that, banks led by transformational leaders not only showcased adaptive acumen but also pioneered innovative responses to banking challenges, notably in integrating risk-based pricing model. These banks demonstrated heightened agility amidst market and regulatory vicissitudes. The study accentuates the imperative of embedding transformational leadership in Nairobi's commercial banks, spotlighting its cardinal role in fostering strategic innovation and cementing market competitiveness.

**KEYWORDS:** Transformational leadership, Strategic Commercial Banking

### I. INTRODUCTION

The contemporary banking environment has undergone significant transformations in recent times, catalyzed by technological evolutions, regulatory modifications, and shifting consumer preferences (Kaur et al., 2019). This wave of change is especially palpable in Nairobi County, a major financial hub in East Africa, where these dynamics present both challenges and opportunities.

Central to the successful navigation of these changes is the role of potent leadership, especially transformational leadership, known for its intrinsic power to invigorate and steer followers toward collective aspirations (Pasovska and Miceski, 2018). In the banking sector, which demands swift responsiveness to fluctuating financial terrains, the potency of such leadership styles becomes increasingly salient (Aunjum, Abbas and Sajid, 2017). A pertinent query arises in this milieu: In what ways does transformational leadership facilitate the embracement and execution of pivotal banking innovations, like the risk-based pricing model, among Nairobi's commercial banks?

Promoted by the Kenyan government via the Central Bank of Kenya, the risk-based pricing model stands out as a novel approach that diverges considerably from customary banking methodologies (Getenga, 2021). Its inception promises to modernize lending by calibrating loan interest rates in accordance with the credit risk profile of borrowers. Nevertheless, its assimilation within the banking system has been relatively gradual, hinting at potential challenges at both strategic and tactical echelons (Getenga, 2021). This underscores the imperative need for robust leadership, adept at steering such transitions.

Probing the impact of transformational leadership on the deployment of these avant-garde banking paradigms is of utmost significance. This inquiry not only sheds light on leadership intricacies in the banking cosmos but also offers strategic insights for banks wrestling with the tribulations of contemporaneity. Hence, this exploration focuses intently on the tangible ramifications of transformational leadership in shaping the trajectories of Nairobi's commercial banks, especially concerning their adoption strategies for risk-based pricing.

The reverberations of this inquiry are wide-ranging. For banking establishments, the revelations serve as a roadmap for harnessing leadership to champion strategic novelties. For regulatory stakeholders, the study elucidates the nexus between visionary leadership and overarching objectives of fiscal sector progression. And for Nairobi's populace and beyond, acquiring a grasp on these nuances becomes pivotal as they steer their financial destinies in a swiftly transmuting banking cosmos.

#### A. Statement of the Problem

The banking sector in Nairobi County, like many other urban financial hubs, is at a critical juncture. As the demands of a modern economy converge with advancements in banking technology and practices, there's an increasing pressure on banks to adapt

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and innovate. Central to this evolution is the shift towards the risk-based pricing model, a paradigm shift from traditional banking practices. Recommended by the Central Bank of Kenya, this model promises greater efficiency in loan pricing by aligning interest rates with individual borrower's credit risk. Its successful adoption and implementation have the potential to catalyze a new era of banking, marked by transparency, fairness, and increased access to credit.

However, despite its evident advantages and governmental endorsement, its uptake has been gradual and inconsistent. Many commercial banks within Nairobi County remain tethered to the traditional arbitrage pricing models, resisting the transition to the more responsive risk-based approach. This reluctance raises a critical question: What underlying factors inhibit these banks from adopting what is ostensibly a superior pricing model?

Existing literature suggests that one key determinant of organizational change and innovation adoption is leadership. Specifically, transformational leadership, with its emphasis on vision, motivation, and change, appears to be an influential factor. Yet, there's a glaring gap in the current body of research concerning the direct influence of transformational leadership on the adoption of the risk-based pricing model within Nairobi's commercial banking sector.

This lacuna in knowledge presents a pressing problem. Without a clear understanding of the role of leadership in this transition, efforts to promote the risk-based pricing model may remain stymied. Consequently, Nairobi's banking sector risks lagging in modernization, potentially compromising its competitive stance in the regional financial market and denying its clientele the benefits of a more equitable loan pricing system. This study seeks to address this problem, aiming to elucidate the nexus between transformational leadership and the strategic choices of commercial banks in Nairobi County, particularly concerning the risk-based pricing model.

## II. LITERATURE REVIEW

### A. Theoretical Framework

The study was grounded in Transformational leadership theory.

- 1) **Transformational Leadership Theory:** The Transformational Leadership theory asserts that leaders can inspire and motivate followers to exceed expected performance and can also stimulate and encourage creativity and innovation (Northouse, 2018). This theory's central idea is that leaders have the power to influence their followers in meaningful ways. In addition to managing and directing their teams, transformational leaders inspire and transform them, guiding them toward bigger objectives that go beyond self-interest for the sake of the team, company, or society.

Transformational leadership can be crucial in the context of the banking industry and the adoption of cutting-edge tactics like the risk-based pricing model. Since banking is a traditionally cautious and risk-averse sector, navigating the changes brought about by technological breakthroughs and shifting regulatory environments calls for a transformative approach.

A transformational CEO in a bank would see the risk-based pricing model as an opportunity to transform the bank's lending facilities rather than just as a legal duty. Such a leader can challenge conventional banking beliefs and encourage the bank's staff to accept the new pricing model by utilizing the transformational leadership principles. By doing so, they can ensure that the institution remains adaptable and customer-focused in an industry that is constantly changing.

### B. Empirical Literature Review

The empirical dynamics of transformational leadership in the banking sector is an intricate web of interconnected variables, strategies, and outcomes. While several studies have taken a theoretical approach to this topic, the real-world implications offer a rich tapestry of insights and revelations.

- 1) **Transformational Leadership and its relevance in the Banking Sector:** Bass and Riggio (2006) have been instrumental in laying the groundwork for our understanding of transformational leadership. Their in-depth exploration delves into how leaders who adopt this style not only inspire and galvanize their followers but also embed a culture of continuous innovation and change. Their findings suggest that transformational leaders are often at the helm of organizations that are more adaptable, proactive, and open to embracing novel strategies. Within the context of Nairobi's banking sector, there seems to be empirical evidence suggesting that banks, which have such leadership at their helm, are more inclined to innovative operational strategies, staying ahead of the curve in a constantly changing financial environment.

Northouse (2018), meanwhile, broadens the scope by providing a panoramic view of various leadership theories, mapping out their applications and impacts across diverse sectors. In his discourse on transformational leadership, Northouse emphasizes its distinct relevance to industries marked by rapid shifts and changes. The banking sector, characterized by its susceptibility to technological advancements, regulatory changes, and evolving customer needs, finds itself in the throes of continuous evolution. Given this backdrop, Northouse's argument asserts that transformational leadership becomes an indispensable asset.

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Leaders who can envision the future, motivate their teams toward that vision, and foster an environment of trust and collaboration are the ones best suited to guide banking institutions through these tumultuous waters. They not only ensure that the bank remains resilient amidst challenges but also ensure that it capitalizes on emerging opportunities, reinforcing the institution's position in the market.

- 2) **Risk-Based Pricing Model in Banking:** The risk-based pricing model has garnered attention as an innovative banking strategy. According to Kaur et al. (2019), the model promises efficiency in pricing loans, ensuring a more transparent and fair lending system. However, the adoption rate of this model remains slow, especially in regions with a dense financial landscape like Nairobi County. The underlying reasons for this hesitancy remain complex and multifaceted.
- 3) **Leadership as a Facilitator for Banking Innovations:** Several studies have probed the role of leadership in fostering innovation in the banking sector. Pasovska and Miceski, (2018) found that banks headed by transformational leaders tend to be early adopters of technological and strategic innovations. Aunjum, Abbas, and Sajid (2017) further found that transformational leadership qualities, such as individualized consideration and intellectual stimulation, play a pivotal role in overcoming barriers to change.

### C. Conceptualization

Based on the thorough examination conducted in this study, a conceptual framework was proposed to predict the influence of transformational leadership on Commercial banking strategies within Nairobi County. This framework posits that transformational leadership, through its dimensions of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, can impact effectively in fostering strategic innovation and cementing market competitiveness.

The study aimed to answer the following research questions:

**Question 1:** What is the impact of Idealized Influence on Commercial Banking Strategies within Nairobi County?

**Question 2:** What is the impact of inspirational motivation on Commercial Banking Strategies within Nairobi County?

**Question 3:** What is influence of intellectual Stimulation on Commercial Banking Strategies within Nairobi County?

**Question 4:** What is the effect of Individualized consideration on Commercial Banking Strategies within Nairobi County?

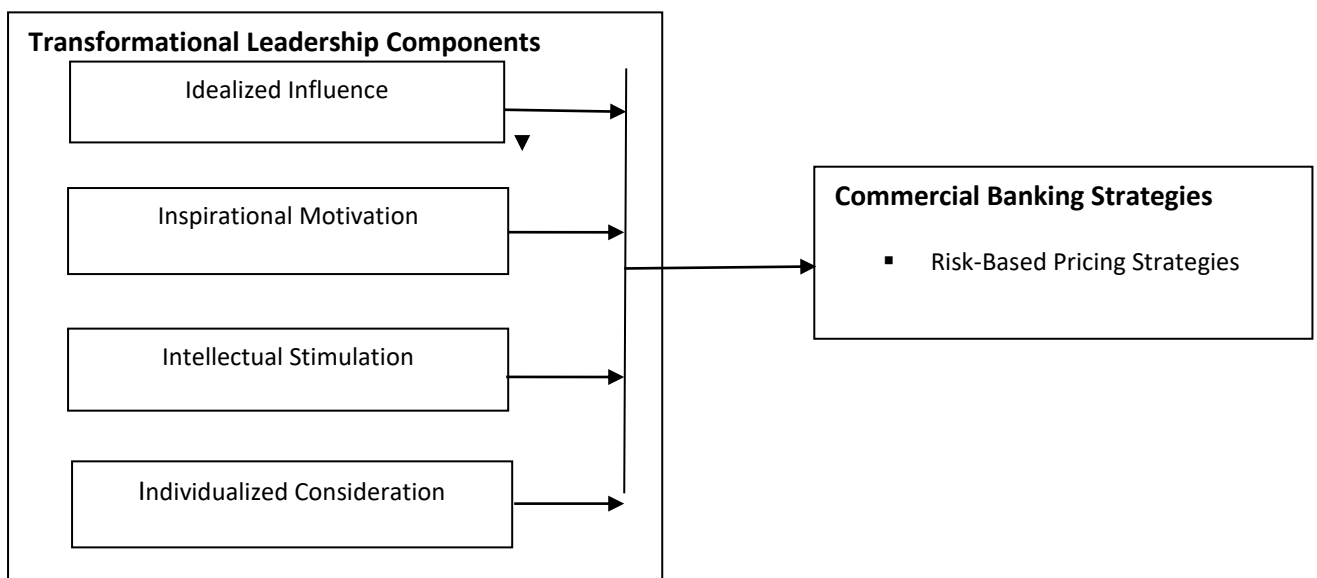


Figure 1. Conceptual Framework

### III. RESEARCH METHODOLOGY

This study embraced a positivistic methodology, employing a cross-sectional descriptive framework. This framework is beneficial because it offers an in-depth insight into the present conditions of phenomena without altering any variables. This method was particularly apt for our investigation, as it enabled a numerical assessment of the connection between transformational leadership and the risk-based pricing model in commercial banks in Nairobi County. Selecting this design allowed us to amass extensive data on the subject, enriching our empirical knowledge of this crucial dynamic within the banking industry.

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## A. Target Population and Sampling Technique

The study's target group consisted of 564 bank managers from commercial banks in Nairobi County. All these branches offered financial services and were uniform in nature, thus making every manager from these branches an apt candidate for the investigation. The spotlight was on credit managers since they play a pivotal role in implementing the loan pricing model. These commercial banks were categorized into three tiers: Tier 1, Tier 2, and Tier 3, as outlined by Faria (2022). The research utilized a stratified random sample of 234 participants. The choice of stratified sampling was fitting for this research because it guaranteed a comprehensive representation from each tier and minimized the risk of sampling prejudice. The population was divided into clear strata based on their respective tiers. Once categorized, the sample count for each tier was set in alignment with its representation in the broader population.

**Table I. Sample Size Distribution**

Strata	Stratum Size	Sample Size
Tier 1	305	126
Tier 2	105	44
Tier 3	154	64
<b>Total</b>	<b>564</b>	<b>234</b>

## B. Research Data and Analysis

Data for the study was garnered using a questionnaire, primarily featuring closed-ended questions rooted in the Likert scale format. The study sample consisted of 234 credit managers, recognized as key players in enacting the loan pricing model. Before the primary survey, a pilot test was carried out with 10 operational managers spanning four banks, ensuring a diverse geographical representation across Nairobi. This pilot survey aimed to gauge the clarity and validity of the questionnaire. The results from this initial test were not incorporated into the final data analysis.

The questionnaire's content and construct validity were meticulously examined, with guidance from university supervisory personnel. In addition, the questionnaire's results were juxtaposed against established benchmarks like earlier research outcomes or expert feedback for criterion-related validity checks. The reliability of the tool was gauged via the Cronbach's alpha coefficient. A range of 0.7 to 1.0 was set as the standard for acceptability, and a coefficient of 0.758 was achieved, signifying robust internal cohesion and reliability for the tool.

Post data collection, intensive editing was conducted to rectify any irregularities or data voids. The gathered data was then converted into numerical form, prepped for evaluation through the SPSS Version 25 software. Descriptive statistical measures (like mean, frequencies, standard deviation, and percentages) were computed for individual variables. The derived results were systematically displayed in tables to ensure easy readability and comparison.

## IV. RESEARCH FINDINGS

### A. Response Rate

Of the 234 questionnaires distributed among the participants, 203 were received back, resulting in a response rate of 86.8%. This rate surpasses the benchmark of 60% proposed by Mugenda & Mugenda (2003) as being adequate for research analysis. Detailed statistics regarding the response rate can be found in Table II.

**Table II. Response Rate**

Category	Freq	%
Response	203	86.8
Non-Response	31	13.2

### B. Respondents Demographics Characteristics

Gender representation among the study participants was nearly balanced, with males comprising 51.2% and females 48.8%. The age distribution was as follows: 45.8% were aged between 36-40 years, 24.4% were between 41-45 years, 14.78% fell in the 31-35 years bracket, 10.34% were above 45 years, and 4.93% were below 30 years. The study showed that 69.46% of participants held undergraduate degrees and 28.57% had postgraduate qualifications. The majority of participants (55.67%) boasted of more than 15 years of experience in the banking sector.

# Operationalizing Transformational Leadership Components: Impact on Commercial Banking Strategies in Nairobi County

## C. Descriptive Statistics

The descriptive statistics summary was according to table III below.

**Table III. Descriptive Statistics Summary**

Variable	No. of Items	Reliability Statistics	Aggregate Mean	Aggregate Std. Deviation
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<b>Intellectual Stimulation</b>	5	0.719	3.572	0.892
<b>Individualized Consideration</b>	7	0.746	3.504	0.76
<b>Risk-Based Pricing</b>	14	0.825	3.67	0.861

This segment furnishes a comprehensive analysis of the dataset through summary statistics that underscore pertinent patterns and trajectories. Both central tendency and dispersion metrics were deployed to articulate an exhaustive understanding of the dataset, as elucidated in table III.

The Risk-Based Pricing variable, evaluated across 14 items, exhibited exemplary internal consistency with a Cronbach's alpha value of 0.825. A standard deviation of 0.861 signified a moderate dispersion in the gathered responses.

The construct of Idealized Influence, evaluated across five parameters, reflected robust internal reliability, bearing Cronbach's alpha of 0.723. The sample portrayed a notable inclination towards Idealized Influence, evidenced by an average score of 3.834 and a standard deviation of 0.8474, indicating moderate variability in the data.

Inspirational Motivation, ascertained through six metrics, manifested commendable internal reliability, with a Cronbach's alpha of 0.779. The aggregate responses indicated a moderate affinity towards Inspirational Motivation, registering a mean value of 3.633. The corresponding standard deviation of 0.870 underscored a balanced distribution of feedback.

The construct of Intellectual Stimulation, defined by five metrics, resonated with significant internal reliability, as evinced by Cronbach's alpha of 0.719. The cohort exhibited a median propensity for Intellectual Stimulation, with an average score of 3.572. A standard deviation of 0.892 highlighted an equitable range of responses.

Regarding Individualized Consideration, which was gauged across seven parameters, it exhibited formidable internal reliability, demonstrated by Cronbach's alpha of 0.746. An average score of 3.504 indicated a median level of Individualized Consideration within the sampled group. A relatively restrained standard deviation of 0.76 suggested a subdued variability in the feedback.

## D. Discussion of the Findings

In assessing the influence of Idealized Influence on Commercial Banking Strategies, findings highlighted nuanced perceptions surrounding facets of organizational leadership, including charisma-driven leadership, morale enhancement, and goal articulation. Nevertheless, a predominant consensus emerged among respondents: their organizations boasted a well-defined vision, subsequently translating to enhanced operational performance. Moreover, there was a pronounced emphasis on addressing ethical considerations with meticulousness across varied methodologies. Regarding the effects of inspirational motivation on commercial banking strategies. Mixed opinions were expressed by respondents regarding the impact of inspiring motivation on the risk-based pricing strategy used by commercial banks in Nairobi County. The favourable effects of inspiring motivation on teamwork, effective communication, employee motivation, and goal setting were generally agreed upon by respondents; however, there were divergent views regarding the level of autonomy offered by organizational leadership. These results provide insight into the various responses' viewpoints on organizational leadership practices related to inspirational motivation and their potential effects on the risk-based pricing model used by commercial banks in Nairobi County. Concerning the impact of Intellectual Stimulation on Commercial Banking Strategies, the findings offered a multifaceted view among Nairobi County's commercial bank respondents. While facets like the promotion of innovation and a problem-solving culture garnered general consensus, there was a more fragmented agreement concerning the endorsement of calculated risks, participatory leadership, and the reassessment of pivotal decisions. Such insights underscore the spectrum of views regarding the integration and ramifications of intellectual stimulation in the banks' leadership dynamics. Pertaining to the influence of Individualized Consideration on Commercial Banking Strategies, the survey illuminated nuanced perspectives among respondents. While there was a broad agreement regarding the leadership's emphasis on promoting employees' career growth and maintaining approachability, perceptions diverged when addressing areas such as duty delegation, tailored coaching, spotlighting individual strengths, mentorship, and the provision of both personal and career counsel. Such insights emphasize that, though certain facets of individualized consideration receive commendable acknowledgment, there are dimensions within the leadership protocols that could benefit from introspection and enhancement.

## **Operationalizing Transformational Leadership Components: Impact on Commercial Banking Strategies in Nairobi County**

From the findings, the relevance and aptness of the Transformational Leadership theory in explaining the dynamics of Nairobi County's commercial banking sector becomes evident. The theory's core tenets, comprising Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration, resonate profoundly with the observed organizational behaviours and strategies. The prominence of Idealized Influence, characterized by charisma-driven leadership, morale enhancement, and a clearly defined vision, aligns well with the study's revelation of banks having a robust, ethically anchored vision. This vision, as the findings suggest, is a linchpin for improved operational performance. Similarly, the element of Inspirational Motivation, pivotal in fostering teamwork, enhancing communication, and setting clear goals, aligns with the generally positive perceptions among respondents. While there are nuances, the overall sentiment underscores the motivational aspects the leadership brings to the commercial banking landscape. The diverse perspectives regarding Intellectual Stimulation, which encourages innovation and problem-solving, echo the theory's emphasis on nurturing a culture of intellectual growth. However, the varying opinions on calculated risks and decision-making processes indicate that while the theory is apt, its application may differ across institutions. Lastly, the insights on Individualized Consideration, which emphasizes personalized growth and mentorship, offer a clear reflection of the theory's stress on individual growth. While there's significant acknowledgment of certain facets of individualized consideration in practice, some dimensions, like duty delegation and mentorship, could benefit from more intensive integration.

### **V. CONCLUSIONS AND RECOMMENDATIONS**

This investigation underscored the pivotal role of transformational leadership dimensions in steering the strategic and operational trajectories of commercial banks within Nairobi County. Far from being mere academic constructs, attributes like Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration manifest in tangible outcomes within the banking sector. A standout observation was the potency of visionary leadership in defining a bank's operational prowess. Banks anchored in strong Idealized Influence, characterized by charismatic leadership paired with a coherent and compelling vision, invariably signalled superior operational milestones. While the essence of Inspirational Motivation, pivotal in galvanizing teamwork, effective communication, and employee alignment, was evident, there remain facets—like championing autonomy and fostering participative leadership—that invite further reinforcement. The double-edged sword of Intellectual Stimulation became apparent. Encouraging a culture of innovation stands as a laudable aim; however, banks must tread judiciously when endorsing calculated risks, ensuring an optimal blend of innovation and prudence. Lastly, while there's a discernible inclination towards promoting personal and professional growth, the research suggests that nuances within Individualized Consideration, especially concerning mentorship and adept task delegation, present avenues for enhanced application.

Considering the study's findings, numerous critical recommendations for Nairobi County banks arise. First and foremost, there is an urgent need to strengthen visionary leadership. Banks should prioritize the development of charismatic leadership qualities by designing comprehensive leadership development programs. These initiatives should be based on the combined goals of establishing a compelling corporate vision and ensuring that it is communicated to all levels of the company. The introduction of advanced training modules is required to further reinforce the key concepts of Inspirational Motivation and Intellectual Stimulation. Such activities should be geared at cultivating an innovative culture, encouraging prudent risk-taking, and promoting participative leadership, so assuring congruence with broader strategic goals. Furthermore, the gaps identified in Individualized Consideration can be skilfully overcome by implementing tailored mentorship activities. These would provide employees with a customized roadmap, highlighting their inherent strengths and prospective growth areas. A proactive move would also be the construction of robust feedback mechanisms. Banks may build a more responsive leadership culture by implementing methods such as quarterly surveys and targeted group discussions to ensure they remain alert to the evolving requirements and viewpoints of their workforce. Finally, given the volatile nature of the banking sector, banks would be wise to strengthen ties with regulatory organizations. Such agreements would allow banks to remain ahead of anticipated regulatory changes, assuring compliance as well as a competitive advantage.

### **ACKNOWLEDGEMENTS**

I am immensely grateful to my Co-Author Dr. Mulinge Daniel for his patience, corrections, remarks, counsel, advice, guidance, and assistance, all of which have been instrumental in completing this article. His guidance and resources have played a significant role in my journey, and I am deeply appreciative of his contributions.

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### REFERENCES

- 1) Aunjum, A.H., Abbas, G. and Sajid, M. (2017) "Transformational Leadership and Employee Motivation in Banking Sector of Pakistan," *Advances in Economics and Business*, 5(9), pp. 487–494. doi:10.13189/aeb.2017.050901.
- 2) Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Psychology Press.
- 3) Getenga, J. (2021). Impacts of COVID-19 on credit reporting systems- Kenya's case study.
- 4) Northouse, P. G. (2018). *Leadership: Theory and practice* (8th ed.). SAGE Publications.
- 5) Pasovska, S. and Miceski, T. (2018) "The impact of transformational leadership in improvement of the organizational capability," *International Journal for Innovation Education and Research*, 6(2), pp. 235–246. doi:10.31686/ijer.vol6.iss2.957.
- 6) Ved Pal Sheera, Dalbir Singh, & Inderpreet Kaur. (2019). Influence of consumer innovativeness and personal characteristics on consumer adoption behavior of online banking: An empirical analysis. *Journal of Management Research and Analysis*, 6(1), 65–70. doi:10.18231/j.jmra.2019.012
- 7) Faria. (2022). *List Of Banks in Kenya 2022 And Their Official Branch Codes*. Logic Publishers. <https://www.logicpublishers.com/list-banks-official-branch-codes-kenya/>.



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## Banjar Women's Strength (Double Role: As Worker and Educator)



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**ABSTRACT:** Allah swt has universally positioned men as having several advantages compared to women, as Allah swt says in the Al-Quran, Surah An-Nisa, verse 34. Men must provide family support to their wives and children, thus requiring them to actively try and work to meet the household's needs.

In some religious literature, it is stated that men are the backbone of the family, while women are created from crooked ribs. On the other hand, the persistence of women in their careers and businesses can be seen, especially in several areas in South Kalimantan. This research will focus on three areas, namely Banjarmasin, Martapura and Bati-bati. The Banjar community in that location has its characteristics from the perspective of the female workers. In Banjarmasin, there are women Gojek Online; in Martapura, there are women "Kelelepon" sellers; and in Bati-bati, there are women farmers.

This study aims to understand the concept of dual roles for women, namely as workers and educators, explore their motivations in working and understand the attitude of society towards them, among who like and dislike their work and seek comparative solutions to various "gender" issues that develop among the Banjar community. This research is a field research with an anthropological approach.

**KEYWORDS:** Banjar women, workers, educators

### INTRODUCTION

Allah swt has universally positioned men to have several advantages compared to women. Men are obligated to provide family support to their wives and children, thus requiring them to work hard to meet the household's needs.

The Prophet, peace be upon him, has also encouraged his people to be active in trying to find halal sustenance in order to be blessed and beneficial, both for the benefit of life in this world and in the hereafter. The Prophet's advice was addressed to the men who are the backbone of the family.

Working for a living is a noble duty of a man who is highly recommended in Islam. However, on the other hand, it turns out that it is not only men who are actively trying to make a living, but there are also women workers who take an active role in supporting the family economy. Besides, they are also educators for their children in the family.

Paying attention to the phenomena that exist in the Banjar community, there are not a few female workers who participate in the business scene in various fields of community life. The city of Banjarmasin, which is the capital of South Kalimantan, is seen by many women working to earn a living, and what is unique is that with today's technological advances, it has created new internet-based business opportunities, such as online go-jek, the women also seem to be actively participating, although not as much as the men.

In Martapura, which is famous for snacks "*klepon*", it can also be seen that the women are actively peddling these goods on the streets. A job that contains a fairly high risk because it must be in an open space in the middle of the hustle and bustle of traffic. Likewise, in Bati-bati, many women can be seen involved in cultivating rice, rubber tapping, and picking palm oil. All of these business activities are quite heavy and challenging jobs for women.

Based on this background, the author intends to explore more deeply about women workers in Banjar society. Further and in-depth studies need to be conducted to obtain information and confirmation so that, at an applicative level, it can be understood wisely in responding to the problems of women workers who actively participate in advancing the wheels of the family and community economy.

### RESEARCH METHOD

This research is a field research with an anthropological approach. The data comes from interviews with respondents in several areas in South Kalimantan, namely in Banjarmasin, Bati-bati and Martapura.

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### RESULTS AND DISCUSSION

Interpreting a dual role for women, namely as workers and educators, is a unique thing and needs to be understood wisely. Understanding their motivation in working without eliminating their role as educators in the household is a struggle as well as a sacrifice. Society's attitude towards them certainly varies, between those who like and dislike with their job. The most important thing is to find conformity solutions to various "gender" issues that are developing among the Banjar community.

### LABOR IN SOUTH KALIMANTAN

According to the Central Bureau of Statistics for South Kalimantan Province, the total population based on the workforce for the City of Banjarmasin is 346,184. Meanwhile, for the Banjar Regency area, it is 309,609. Meanwhile, the area of Tanah Laut Regency is 171,565. From these data, it can be seen that Banjarmasin City occupies the first position, followed by Banjar Regency and Tanah Laut Regency.<sup>1</sup> This distribution is a condition that is recorded and clearly visible in daily activities; among the number of workers are women.

The explanation from the BPS above is that there are workers who have jobs but are temporarily not working, namely the condition of someone who has a job but for the past week has been temporarily not working due to various reasons, such as illness, leave, waiting for harvest, strike and so on. Examples are as follows:

- Permanent workers, government/private employees who are not working due to leave, illness, strike, absenteeism, company machinery/equipment damaged, and so on.
- Farmers who work on agricultural land and are not working due to illness or waiting for the next job (waiting for the harvest or the rainy season to work the fields).
- Professional workers (having certain/special skills) who are not working due to illness, waiting for the next job/order and so on. Such as puppeteers, barbers, masseurs, shamans, commercial singers and so on.

### PROFILE OF WOMEN IN BANJARMASIN

In 2018, the sex ratio in Banjarmasin City was 100.56. This can illustrate that the male population is still more than the female population, although the difference tends to be small. Based on the sub-district area, almost 46.79% of the population of Banjarmasin City live in South Banjarmasin and North Banjarmasin Districts, with the highest population density in Central Banjarmasin District, which reaches 14,358 people/km<sup>2</sup>. The population of Banjarmasin City is dominated by the young age group, where the age group 0-4 years is the largest, namely around 9.24 per cent of the total population of Banjarmasin City. When viewed from the age group 0-29 years, the total population of the City of Banjarmasin in that age group is 364,348 or more than half of the total population of the City of Banjarmasin (51.98 per cent).<sup>2</sup>

The dependency ratio is an important demographic indicator. The higher the percentage of the dependency ratio indicates the higher the burden that productive people must bear to finance the lives of people who are not yet productive and no longer productive.

The number of job seekers registered at the Banjarmasin City Social and Labor Service in 2018 reached 6,156, with the percentage of male job seekers at 48.67 per cent and women at 51.33 per cent. The number of job seekers with a high school education levels was the highest, with 3,004 or 48.80 per cent of all registered job seekers.<sup>3</sup> This indicates that women's enthusiasm for work is higher than that of men in terms of numbers.

At a glance, the majority of workers in the City of Banjarmasin are men, both the State Civil Apparatus and the private sector. Of course, the work varies, ranging from *indoor* (inside the room) to that *outdoor* (outdoors). Some sell merchandise, some sell services and expertise.

The services of a motorcycle taxi driver used to be very much needed even today; their existence is still very much needed. However, what is unique is that in the past, motorcycle taxi drivers were traditional, had places to hang out and occasionally walked around to find passengers. The current condition is that there is such a thing as *ojol* (online motorcycle taxi), which is arranged in a professional manner and relies on the internet network for ordering with various features and a variety of services. Uniquely, previously, there were no women's motorbike taxis in the city of Banjarmasin, but with the advent of technology, there are women's motorbike taxis (online motorcycle taxis) that are starting to appear in the middle of going back and forth on the highway. This condition is an interesting phenomenon; professions that have only been practised by men so far have begun to be played by women.

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<sup>1</sup> <https://kalsel.bps.go.id/subject/6/tenaga-kerja.html#subjekViewTab5>. Retrieved March 5, 2020.

<sup>2</sup> BPS City of Banjarmasin, *Banjarmasin City in Figures 2019*, (Banjarmasin: BPS City of Banjarmasin, 2019), h. 89.

<sup>3</sup> BPS City of Banjarmasin, *Banjarmasin City in Figures 2019*, (Banjarmasin: BPS City of Banjarmasin, 2019), h. 70

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Meanwhile, the condition of ojol (online motorbike taxis) in Banjarmasin is still better compared to some of the unsavoury news circulating in various media. From the results of the researchers' interviews with ojol women in the city of Banjarmasin, they are very proud of the profession they live in; even though they have a variety of unique and memorable experiences, sometimes they feel joy, and sometimes they feel sad.

Among the happy stories they tell is when the customers who use their services give more tips to them, the rest of the payment that must be returned is given sincerely by the customer. Some also order food that they call "*go food*," and then some of it is given to the ojol woman who delivers the food order. There were others who asked to be delivered to Banjarbaru and were given more money, up to Rp. 500.000,-.

Besides the love story, there is also a sad story that they experienced. Memei said that she once got lost because she misread the address, so she had to turn around many times to get to her destination. She said there was no compensation for the cost of petrol and the loss of time. But that's a risk that must be accepted because of one's own mistakes. They have also been hit and run and do not want compensation. There are also cheated, caught in the rain, there are temptations from naughty men and so on. They also feel that they don't have enough time to educate their children because there is almost no spare time to accompany their children.

Their happy story, according to them, is that they get a lot of relationships, get money, and there is a sense of pride because they can make their own money without being dependent on other people. In addition, they also receive support from the family, including their children.

### PROFILE OF WOMEN IN BATI-BATI

For the plantation sub-sector, palm oil is the leading commodity, with a total production in 2018 of 2,326 tons planted on an area of 932 hectares. Followed by the rubber commodity, which produced as much as 2,300 tons on a planted area of 960 hectares. In the livestock sub-sector, the highest poultry population came from broiler chickens, with a total population of 10,856,521 birds. As for large livestock, the largest population came from beef cattle, with a total population of 2,091 heads.<sup>4</sup>

The extent of existing land with sparse density levels makes it very possible for the Bati-Bati region to utilize the existing land with a variety of commodities, including oil palm, rubber, rice fields and also for raising chickens, goats and cattle.

Farmers who work in the fields are not only carried out by men but also assisted by women. From ploughing the fields, *descending* (making seeds), planting the seeds, giving fertilizer, and spraying pests and diseases until they arrive starting (harvest). All of these activities not only can be done by men, but women can also do it.

There are many stories of joy and sorrow in rice farming. From the results of interviews with female respondents in Bati-bati, it was revealed that among the sad stories they experienced, there were reptiles, such as snakes, leeches, rats, birds and so on.

Pests and diseases are also an obstacle faced by farmers when in the process of planting rice. Mice and bird pests are often found by farmers in their fields. To anticipate the rat infestation, they try to farm together, so if there are rats too, then they term them "*tea bags*." The mice are because there are many fields that grow rice. Meanwhile, to drive away birds, they usually use "scarecrows" so that the birds don't dare to approach.

Among the obstacles faced when harvesting oil palm are having to bask in the hot sun, rain when picking the fruit, and sometimes there are snakes. It has even happened because it has been picked but taken too late by the buyer due to transportation problems; the palm fruit that has been picked can no longer be used. For rubber trees, among the sad stories are the many mosquitoes and the bad smell.

Their domestic life is peaceful. However, they realize that they have little time to educate their children because there is almost no time to teach their children, as well as opportunities to accompany their children.

The happy story is when they sell their results and get money from their hard work. Whatever results they get will be received with joy and hope to get blessings from the results of their efforts.

### PROFILE OF WOMEN IN MARTAPURA

A small green round snack with grated coconut on the outside. Martapura residents, especially South Kalimantan, are certainly no strangers to the oxtail bukhari kelepon cake. Apart from being soft, it is also delicious. If you eat this cake, it will break and release brown sugar.

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<sup>4</sup> BPS of Tanah Laut Regency, *Bati-bati District in Figures 2019*, (BPS Tanah Laut: CV. Karya Bintang Musim, 2019), h. 55.

## Banjar Women's Strength (Double Role: As Worker and Educator)

This snack is very easy to find at the intersection of Martapura City or the red light leading to the Dome of the late Syekh Muhammad Zaini Bin Abdul Ghoni, who is better known as the late Guru Sekumpul. Ranks of traders sell these klepon cakes to motorcycle and car drivers, both from Martapura and from the city of Banjarmasin.

This typical Martapura snack can also be found at Syamsudin Noor Airport, Banjarbaru. If you go to South Kalimantan, you won't be satisfied if you don't try this oxtail skeleton cake because the price for one box is very low; if it's still in the morning or during the day, it's Rp. per box up to Rp. 2,000 because the lemon sold by the traders has to run out, considering that the ingredients for this cake are made from sticky rice; of course, it cannot last until late at night because it can get stale.

From observations at the research location, it was found that there were many female sellers selling these klepon cakes. Various brand names are the identity of the klepon production, one of which is well-known is Bukhari. The various sad stories experienced by these female klepon sellers include having to bask in the scorching heat of the sun during the dry season, sometimes having to be willing to be drenched in rain during the rainy season, and sometimes even having to suffer losses due to sales that quickly stale (expired). No matter what profession they live in, if it is accepted with pleasure and full of gratitude, it will bring blessings and sufficiency even though, according to some people, the income they get is "small" but full of blessings.

Their household life is harmonious. On the other hand, they realize that there are almost no opportunities to educate their children because the time that should be used to teach their children is spent working outside the home, as well as the opportunity to play with their children is very minimal.

## CONCLUSION

The concept of Banjar women who have dual roles, namely as workers and educators, is a heavy burden for a woman. As workers, they try to help their husbands, as well as being the backbone of the family (for those who are single *parents*). This effort as a breadwinner is considered a very noble worship in religious judgment. As children's educators, women are expected to spend their time accompanying their children in learning.

The motivation of Banjar women workers who are willing to become workers (breadwinners) is driven by a high sense of responsibility based on economic factors so they don't become beggars and become a burden to other people. There are those who are divorced from their husbands, so they become single *parents* in raising their children until they get the power to be able to survive in life.

Society's attitude towards working women is very appreciative, especially when they understand how big their struggle is to deal with the consequences of the work they are involved in. Jobs as *ojol* (online ojek), as a farmer and as a culinary vendor on the street is a high-risk profession. But all that is lived with perseverance, patience and full of gratitude so that the community can accept their presence as mujahidah breadwinners.

The growing gender sensitivity among the Banjar people regarding female workers is not really a problem; working for a living is not something that is considered taboo as long as the work is lawful and does not violate the nature of being a woman.

## REFERENCES

- 1) Abd. Shomad, "Selayang Pandang tentang Antropologi Pendidikan Islam," Jurnal Pendidikan Agama Islam Vol. 1, No. 1 Mei - Oktober 2004.
- 2) Agus salim, *Teori dan dan Paradigma Penelitian Sosial*, Yogyakarta, Tiara Wacana, 2006.
- 3) Ahmad Barjie B, *Refleksi Banua Banjar (Kumpulan Tulisan Seputar Kesultanan Banjar, Sejarah, Agama dan Sosial Budaya)*, Banjarmasin: CV. Rahmat Hafiz Al Mubaraq, 2011.
- 4) Akbar S. Ahmad, *Ke Arah Antropologi Islam*, terj. Asmara Hadi Usman, Jakarta, Media Dakwah, 1994.
- 5) Alfani Daud, *Beberapa Ciri Etos Budaya Masyarakat Banjar*, Banjarmasin: IAIN, 2000.
- 6) —————, *Islam dan Masyarakat Banjar: Deskripsi dan Analisa Kebudayaan Banjar*, Jakarta: PT. RajaGrafindo Persada, 1997.
- 7) Baedhowi, *Antropologi Al-Qur'an*, Yogyakarta: PT. LkiS Printing Cemerlang, 2009.
- 8) Departemen Pendidikan dan Kebudayaan RI, *Kamus Besar Bahasa Indonesia*, Jakarta, Balai Pustaka, 2008.
- 9) Isna Rahmah Solihatin "Konsepsi Al-Quran Tentang Perempuan Pekerja Dalam Mensejahterakan Keluarga, "Kesetaraan dan Kebijakan", Jurnal HARKAT: Media Komunikasi Islam Tentang Gebder dan Anak, 2017.
- 10) M. Suriansyah Ideham dkk, *Urang Banjar dan Kebudayaanannya*, Yogyakarta: Ombak, 2015.
- 11) Matthew B.Miles dan A.Michael Huberman, *Qualitative Data Analysis*, United Kingdom: SAGE Publications, 1994.
- 12) Mujiburrahman dkk, *Badingsanak Banjar-Dayak, Identitas Agama dan dan Ekonomi Etnisitas di Kalimantan Selatan*, Yogyakarta, CRCS, 2011.

## Banjar Women's Strength (Double Role: As Worker and Educator)

- 13) —————, *Agama Generasi Elektronik*, Yogyakarta, Pustaka Pelajar, 2017.
- 14) Muhammad Rusli, *Wanita Karir Perspektif Hukum Islam (Studi Kasus Di Kecamatan Rappocini Kota Makassar)*, Tesis UIN Alauddin, Makassar, 2016.
- 15) Nur Syam, *Madzhab-madzhab Antropologi*, Yogyakarta: LkiS Pelangi Aksara, 2007.
- 16) Peter Connolly, *Aneka Pendekatan Studi Agama*, Yogyakarta: IRCiSol, 2016.
- 17) Ronald Wardhaugh, *An Introduction to Sociolinguistics*, (Blackwell textbooks in linguistics ; 5th ed.).
- 18) Sindhunata, *Dilema Usaha Manusia Rasional*, Jakarta: PT. Gramedia, 19830.
- 19) Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, Bandung: Alfabeta: 2010.
- 20) Taufik El-Rahman, *Tanah Banjar: Intelektualisme Tak Pernah Mati (Mozaik Kota, Manusia dan Budaya)*, Banjarmasin: Penakita Publisher, 2012.
- 21) Zakiah Darajat, *Perbandingan Agama*, Jakarta, Bumi Aksara, 1985.



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## The Safety and Efficacy of Acid Suppression Therapy in Neonatal GERD



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**ABSTRACT:** Gastroesophageal reflux (GER) is a common physiologic process in infants that often resolves with growth and maturation, while gastroesophageal reflux disease (GERD) is a serious and common referral disease in infants and neonates. The first-line treatment for both GER and GERD is conservative therapy. H2RAs and PPIs are the two basic pharmacologic agents in the treatment of GERD in pediatrics and adults. The efficacy of PPIs is higher than that of H2RAs in GERD treatment. There are controversies in the pharmacologic treatment of neonatal GERD, and performing more clinical trials to survey the effect of PPIs and H2RAs and compare them with each other is necessary in this age group. We conducted three different clinical trials to compare the efficacy and safety of ranitidine with omeprazole or lansoprazole in refractory neonatal GERD.

**KEYWORDS:** Neonates, Gastroesophageal reflux disease, Pharmacologic, Treatment, Comparing

### 1. INTRODUCTION

GER involves the retrograde passage of gastric contents into the esophagus and pharynx with or without regurgitation and/or vomiting [1-4]. GER is a common physiologic process in infants that often resolves with growth and maturation [1]. It occurs in 60–70% of healthy infants during the first 4 months of life and often resolves with maturation by 12-14 months of age [4, 5]. When GER becomes bothersome and is accompanied by other symptoms such as frequent vomiting, failure to thrive, severe arching, irritability, poor oral feeding, signs of esophagitis or hematemesis, or respiratory symptoms, it is defined as GERD [6]. The prevalence of GERD changes from 8.5% to 10-20% from Eastern Asia to Western Europe and North America [7, 8]. The hazards that increase the occurrence rate of GERD include prematurity, neurologic upsets, some drugs like sedatives and muscle relaxants, a positive history of GERD in the family, and gastrointestinal abnormalities [9]. The main aims of infantile GERD treatment are preserving the clinical response, promoting suitable growth, and preventing recurrence and complications [10].

### 2. TREATMENT

#### 2.1. Parental reassurance

As the nature of GER is benign and self-limiting, parental reassurance is the mainstay of treatment for infantile GER.

#### 2.2. Conservative therapy

The first-line treatment in both GER and GERD is conservative therapy, including lifestyle changes (not wearing tight clothes, changing diapers before feeding, prohibiting the use of drugs that increase the occurrence rate of GER, feeding slowly in patients with nasogastric tubes, and avoiding passive smoking), in addition to anti-GER diet (low volume and more divided feeding, thickened formula, or thickening of expressed breast milk with cereal), and position guidelines [9, 11].

#### 2.3. Pharmacotherapy

Pharmacotherapy is not recommended for physiologic GER unless GERD is evident. It is recommended when more severe GERD is refractory to conservative therapy [9]. The first-line medication is acid suppression therapy [12, 13].

##### 2.3.1. Acid-suppressants

PPIs and H2 receptor antagonists increase gastric pH and inhibit acid reflux, which can induce injuries in the esophageal mucosa. [12, 13]. PPIs inactivate H<sup>+</sup>/K<sup>+</sup>-ATPase in the gastric parietal cells' canaliculi and inhibit gastric acid production, reduce the volume of gastric secretion, and make gastric emptying easier [14]. As PPIs have a longer duration of action, fewer side effects, and a higher prohibition of meal-induced acid secretion, they are superior to H2RAs [15, 16]. PPIs are preferred to H2RAs in reducing GERD

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symptoms in adults [17]. Despite the lack of published data about the efficacy of acid suppressants and increasing worries about their complications, oral PPIs have been increasingly used in infantile (under one year of age) GERD [18, 19]. In recent guidelines, a 4-week trial of a PPI or H2RA for infants with symptoms such as unexplained feeding difficulties, bizarre behavior, and unsuitable weight gain, along with significant regurgitation, has been suggested [9]. There is no documented data that supports the efficacy of acid-suppressants in the treatment of neonatal GERD [20]. Neonatal GERD is still difficult trouble to define and manage, and more studies are needed for clinical diagnosis and management [21].

PPIs have fewer therapeutic discontinuations and diversions in the first month of management. [18]. A “step-up” protocol of acid suppression usage was the past viewpoint of infantile GERD therapy, in which ranitidine was administered as the first acid suppressant. If there was no response despite the prescription of high-dose ranitidine, it was switched to PPIs [22]. An updated review has recommended pharmacotherapy for the treatment of severe pediatric GERD refractory to conservative therapy, and PPIs have been advised over H2-receptor antagonists because of their higher efficacy [23]. Recent studies have found that either acid reflux or nonacid reflux may induce the clinical features of neonatal GERD [24].

### 2.3.2. Prokinetics

These drugs are another group of pharmacologic agents used in the treatment of GERD. Metoclopramide is among the prokinetics. Whenever it is received for a prolonged period of time or in a high dose, the side effects, including irritability, drowsiness, oculogyric crisis, dystonic reaction, apnea, and emesis in infants may appear [25]. Domperidone and cisapride are prohibited from being used in the USA because they induce probable cardiac arrhythmia [26, 27]. Macrolides are among the prokinetics and may also induce cardiac arrhythmia in long-term treatment [28]. It seems that metoclopramide can be a safe prokinetic if it is administered in a low-dose quota over a short period of time. It is the reason why we prescribed metoclopramide in our trials.

### 2.4. Surgical intervention

Fundoplication is generally advised for infants with severe GERD who are refractory to maximal medical therapy [16].

## 3. THE COMPARISON OF THE SAFETY AND EFFICACY OF PPIs WITH H2RAs IN NEONATAL GERD

According to our research in the literature, PubMed, and Google Scholar, few clinical trials have compared the efficacy and safety of PPIs with H2RAs in pediatric GERD and very few in neonatal GERD.

## 4. CURRENT CLINICAL TRIALS COMPARING THE SAFETY AND EFFICACY OF PPIs WITH H2RAs IN NEONATAL GERD

We performed three clinical trials and administered H2RAs and PPIs in neonatal GERD. We also compared the safety and efficacy of H2RAs with PPIs in these patients. In our studies, other diagnoses were ruled out regarding the clinical manifestations and examination of the patients, lab tests, sonography, etc. The highly positive response to our interventions emphasized the diagnosis of GERD in each patient too. Each patient had already been managed by conservative therapy or conservative therapy plus monotherapy for three to five days, according to a balance of danger and advantages between the intensity of clinical symptoms and the cure rate. The patients with the diagnosis of protein milk allergy were excluded from our studies. The clinical trials performed included [ 29-31]:

1. In our first double-blind trial study, 116 term neonates (mean age  $10.53 \pm 8.17$  days; girls 50.9%) who were diagnosed with refractory GERD in the neonatal ward of Bahrami Children’s Hospital (during 2013- 2015) were randomly administered either “oral ranitidine plus metoclopramide” or “oral omeprazole plus metoclopramide”. The Research Ethics Committee of Tehran University of Medical Sciences accepted the protocol of this survey (IR. TUMS.1393.110 code). The informed consent form was filled out by the parents or guardians of the participants before the intervention. The response rate was  $75.43 \pm 23.24\%$  in the “ranitidine plus metoclopramide” group versus  $93.74 \pm 7.28\%$  in the “omeprazole plus metoclopramide” group after one week and one month of intervention. There were no side effects in either group after one week or one month of intervention.

This clinical trial showed that therapy with “ranitidine or omeprazole plus metoclopramide” led to a response rate of  $> 70\%$ , but it was remarkably better ( $> 90$ ) in the “omeprazole plus metoclopramide” group [ 29].

2. In our second randomized double-blind clinical trial, fifty-eight preterm neonates hospitalized in neonatal wards and neonatal intensive care units (NICUs) of Bahrami Children’s Hospital and Shariati Hospital (during 2014-2016) with a clinical diagnosis of refractory GERD, were randomly administered either “oral ranitidine plus metoclopramide” or “oral omeprazole plus metoclopramide”. The Research Ethics Committee of Tehran University of Medical Science approved the protocol of this survey (IR.TUMS.REC.1395.2766), and the Iranian Registry of Clinical Trials accepted the registry of this clinical trial (IRCT2016030226876N1). Consent was obtained from the parents or guardians of participants before the intervention. The response rate was  $77.06 \pm 3.38 \%$  in the “ranitidine plus metoclopramide” group versus  $91.37 \pm 7.5\%$  in the “omeprazole plus metoclopramide” group after one week of intervention. We found no drug-related side effects in either group in this trial.

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This clinical trial showed that therapy with the “ranitidine or omeprazole plus metoclopramide” led to a response rate of >70% after one week of intervention in each group, but the response rate was remarkably better (> 90%) in the “omeprazole plus metoclopramide” group [30].

3. In our third randomized double-blind clinical trial, 120 term neonates (mean age  $10:91 \pm 7:17$  days; girls 54.63%) with the diagnosis of refractory GERD to conservative and monotherapy admitted to Bahrami Children Hospital (during 2017-2019) were randomly administered “ranitidine plus metoclopramide” or “lansoprazole plus metoclopramide”. The Research Ethics Committee of Tehran University of Medical Science accepted the protocol of this study (IR.TUMS.MEDICINE.REC.1396.3714), and the Iranian Registry of Clinical Trials approved the registry of this clinical trial (RCT20160827029535N3). The parents or guardians of all infants filled out the written informed consent form before the study. The diagnosis of GERD was established due to the I-GERQ-R clinical scoring, which consists of twelve items. The range of total scoring in the final version of the IGERQ-R is from 0 to 42, with a cut point of > 15 scores [20]. We gathered the alterations in symptoms and signs after one week and one month of intervention. In the end, fifty-four neonates in each group completed the study, and their data were analyzed. In this study, the clinical response rate increased in “lansoprazole plus metoclopramide” group and the scoring rate decreased to  $7.44 \pm 3.86$  score after one week, and  $2.41 \pm 3.06$  score after one month of intervention. The clinical response rate also increased in the “ranitidine plus metoclopramide” group as the scoring rate decreased to  $9.3 \pm 4.57$  after one week and  $4.5 \pm 4.12$  score after one month of intervention. We did not find any drug-related adverse effects in either group during interventions.

This clinical trial showed that therapy with “ranitidine or lansoprazole plus metoclopramide” led to a response rate of >50% and >70% in each group after one week and one month of intervention, respectively, but it was significantly higher in the PPI group (lansoprazole) ( $88:47 \pm 13:18\%$ ) [31].

## 5. CONCLUSIONS

Generally, in all three trials, the response rate was significant in both groups of H2RA and PPIs after one week and one month of intervention, but it was significantly higher in the PPIs group. The first and second studies showed that omeprazole induced a significantly higher response rate in comparison with ranitidine in the treatment of GERD in preterm and term neonates. In the third study, lansoprazole also had a higher response rate in comparison with the H2RA group, which was significant in the treatment of GERD in term neonates.

## LIMITATIONS

As far as our knowledge, few clinical trials have administered H2Ras or PPIs in neonatal GERD. There are also very few clinical trials that have compared the efficacy and safety of PPIs with H2RAs in neonatal GERD. Further studies with more participants and longer follow-ups are recommended to administer PPIs or H2RAs to this age group and compare the effects of these agents with each other, and their side effects.

## INNOVATIONS AND BREAKTHROUGHS

The novelty of this study includes:

1. Administering of H2RAs and PPIs in neonatal GERD.
2. Comparing the safety and efficacy of H2Ras with PPIs in neonatal GERD.

## LIST OF ABBREVIATIONS

Gastroesophageal Reflux (GER); Gastroesophageal Reflux Disease (GERD)

## DATA AVAILABILITY

The points of documents used to assist the results of this study are available upon the rational request from the corresponding author.

## DISCLOSURE OF CONFLICT OF INTEREST

The authors proclaim that there was no conflict of interest.

## FUNDING STATEMENT

The authors mention that no funding was received from commercial institutions to conduct this study.



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### STATEMENT OF INFORMED CONSENT

Before conducting the mentioned trials, the parents or guardians of neonates filled out the informed consent form. Our three clinical trials were approved by the Research Ethics Committee of the Tehran University of Medical Sciences and were registered in the Iranian Registry of Clinical Trails.

### AUTHOR'S CONTRIBUTION

Peymaneh Alizadeh Taheri created the idea, gathered the data, and wrote and revised the manuscript.

### ACKNOWLEDGMENTS

The Author wishes to thank the Research Development Center of Bahrami Children's Hospital and the personnel of the Neonatal Clinic and Neonatal Ward of Bahrami Children's Hospital, and Shariati Hospital.

### REFERENCES

- 1) Nelson SP, Chen EH, Syniar GM, and Christoffel KK. Prevalence of symptoms of gastroesophageal reflux during infancy. A pediatric practice-based survey. *Pediatric Practice Research Group. Arch Pediatr Adolesc Med.* 1997;151(6): 569-72. DOI: 10.1001/archpedi.1997.02170430035007.
- 2) Hegar B, Dewanti NR, Kadim M, Alatas S, Firmansyah A, and Vandenplas Y. Natural evolution of regurgitation in healthy infants. *Acta Paediatr.* 2009; 98(7): 1189-1193. DOI: 10.1111/j.1651-2227.2009.01306. x.
- 3) Ciciora SL, and Woodley FW. Optimizing the use of medications and other therapies in infant gastroesophageal reflux. *Paediatr Drugs.* 2018; 20 (6): 523–537. DOI: 10.1007/s40272-018-0311-3.
- 4) Rosen R, Y. Vandenplas Y, Singendonk M, Cabana M, DiLorenzo C, Gottrand F, et al. Pediatric gastroesophageal reflux clinical practice guidelines. *J Pediatr Gastroenterol Nutr.* 2018;66(3):516–554. DOI: 10.1097/MPG.0000000000001889.
- 5) Campanozzi A, Boccia G, Pensabene L, Panetta F, Marseglia A, Strisciuglio P, et al. Prevalence and natural history of gastroesophageal reflux: A pediatric prospective survey. *Pediatrics* 2009;123(3):779-83. DOI: 10.1542/peds.2007-3569.
- 6) Orenstein SR. Symptoms and reflux in infants: Infant gastroesophageal reflux questionnaire revised (I-GERQ-R)—utility for symptom tracking and diagnosis. *Curr Gastroenterol Rep* 2010;12(6):431-6. DOI: 10.1007/s11894-010-0140-1.
- 7) Jung HK. Epidemiology of gastroesophageal reflux disease in Asia: A systematic review. *J Neurogastroenterol Motil.* 2011;17(1):14-27. DOI: 10.5056/jnm.2011.17.1.14.
- 8) Dent J, El-Serag HB, Wallander MA, and Johansson S. Epidemiology of gastro-esophageal reflux disease: A systematic review. *Gut.* 2005; 54 (5):710-17. DOI: 10.1136/gut.2004.051821.
- 9) National Collaborating Centre for Women's and Children's Health. Gastro-esophageal reflux disease: Recognition, diagnosis and management in children and young people. National Institute for Health and Care Excellence (NICE). London (UK): Clinical Guidelines. 2015. Bookshelf ID: NBK293624
- 10) Ferreira CT, de Carvalho E, Sdepanian VL, de Moraes MB, Vieira MC, and Silva LR. Gastroesophageal reflux disease: exaggerations, evidence and clinical practice. *J Pediatr (Rio J).* 2013;90(2):105- 18. <http://dx.Doi.org/10.1016/j.jpmed.2013.05.009>
- 11) van der Pol RJ, Smits MJ, van Wijk MP, Omari TI, Tabbers MM, and Benninga MA. Efficacy of proton-pump inhibitors in children with gastroesophageal reflux disease: A systematic review. *Pediatrics.* 2011;127(5):925–935. DOI: 10.1542/peds.2010-2719.
- 12) Winter HS. Management of gastroesophageal reflux disease in children and adolescents. In: Post TW, ed. *UpToDate.* Waltham, MA. Accessed on April 1, 2019.
- 13) Mattos ÂZ, Marchese GM, Fonseca BB, Kupski C, and Machado MB. Antisecretory treatment for pediatric gastroesophageal reflux disease - a systematic review. *Arq Gastroenterol.* 2017;54(4):271–280. DOI.org/10.1590/s0004-2803.201700000-42.
- 14) Ward RM, Kearns GL. Proton pump inhibitors in pediatrics. Mechanism of action, pharmacokinetics, pharmacogenetics, and pharmacodynamics. *Pediatr Drugs.* 2013;15(2):119-131. DOI: 10.1007/s40272-013-0012-x.
- 15) Nelson SP, Kothari S, Wu EQ, Beaulieu N, McHale JM, and Dabbous OH. Pediatric gastroesophageal reflux disease and acid-related conditions: Trends in incidence of diagnosis and acid suppression therapy. *J Med Econ.* 2009; 12(4):348–355. DOI: 10.3111/13696990903378680.
- 16) Lightdale JR, and Gremse DA. Section on Gastroenterology, Hepatology, and Nutrition. Gastroesophageal Reflux. Management guidance for the pediatrician. *J Pediatrics.* 2013;131(5): e1684-1695. DOI: 10.1542/peds.2013-0421.

## The Safety and Efficacy of Acid Suppression Therapy in Neonatal GERD

- 17) Chiba N, De Gara CJ, Wilkinson JM, and Hunt RH. Speed of healing and symptom relief in grade II to IV gastroesophageal reflux disease: A meta-analysis. *Gastroenterol.* 1997;112(6):1798–1810. DOI: 10.1053/gast.1997.v112.pm9178669.
- 18) Barron JJ, Tan H, Spalding J, Bakst AW, and Singer J. Proton pump inhibitor utilization patterns in infants. *J Pediatr Gastroenterol Nutr.* 2007;4: 421–427. DOI: 10.1097/MPG.0b013e31812e0149.
- 19) Zhou Y , Xu L , Wushouer H , Yu A , Xu Z , Chen C, et al. Acid suppression use among infants in one tertiary children's hospital in China, 2015-2018: A retrospective observational study. *Front Pediatr.* 2021; 21(9):679203. DOI: 10.3389/fped.2021.679203. eCollection 2021.
- 20) Murthy P, Dosani A, and Lodha A. Acid suppression in neonates: Friend or Foe? 2019. *Indian Pediatr.* 56(15):541-546.
- 21) Chabra S, and Peeples ES. Assessment and management of gastroesophageal reflux in the newborn. *Pediatr Ann.* 2020;49(2): e77–e81. DOI: 10.3928/19382359-20200121-02.
- 22) Hassall E. Step-up and step-down approaches to the treatment of gastroesophageal reflux disease in children. *Curr Gastroenterol Rep.* 2008; 10(3): 324–331. DOI: 10.1007/s11894-008-0063-2.
- 23) Leung AKC, and Hon KL: Gastroesophageal reflux in children: An updated review. *Drugs Context.* 2019; 8: 1-12. DOI: 10.7573/dic.212591. eCollection 2019.
- 24) Orenstein SR. Infant GERD. Symptoms, reflux episodes & reflux disease, acid & non-acid reflux- implications for treatment with PPIs. *Curr Gastroenterol. Rep.* 2013;15(11):353. DOI: 10.1007/s11894-013-0353-1.
- 25) US Food and Drug Administration: Metoclopramide-containing drugs. November 2013, <http://www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm106942.htm>, date of publication: 2009, last access: November 7, 2013.
- 26) Djeddi D, Kongolo G, Lefaix C, Mounard J, and Léké A: Effect of domperidone on QT interval in neonates. *J Pediatr.* 2008; 153(5): 663–666. DOI: 10.1016/j.jpeds.2008.05.013.
- 27) Zamora SA, Belli DC, Ferrazzini G, and Friedli B. Effects of cisapride on ventricular depolarization-repolarization and arrhythmia markers in infants. *Neonatal.* 2001; 80(1) :30–34. DOI: 10.1159/000047116.
- 28) Albert RK, Schuller JL, and COPD Clinical Research Network. Macrolide antibiotics and the risk of cardiac arrhythmias. *Am J Respir Crit Care Med.* 2014;189(10): 1173–1180. DOI: 10.1164/rccm.201402-0385Cl.
- 29) Taheri PA, Mahdianzadeh F, Shariat M, and Sadeghi M. Combined therapy in gastroesophageal reflux disease of term neonates, refractory to conservative therapy and monotherapy: A clinical trial. *JPNIM.* 2018;79(2): e070201.
- 30) Sajjadian N, Akhavan Z, Taheri PA, and Shariat M. A new therapeutic strategy for gastroesophageal reflux disease refractory to conservative therapy and monotherapy in preterm neonates: A clinical trial. *JPNIM.* 2019;8(1): e080125.
- 31) Taheri PA, Validad E, and Eftekhari K. The safety and efficacy of lansoprazole plus metoclopramide among neonates with gastroesophageal reflux disease refractory to conservative therapy and monotherapy: A clinical trial. 2021: *Int J Pediatr.* 2021. Article ID 3208495, 9 pages <https://DOI.org/10.1155/2021/3208495>.



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## The Effect of Product and Brand Image on Purchasing Decisions for Chili Sauce Products ABC Brand Instan in Kediri City



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**ABSTRACT:** The majority of the population in Indonesia works in the agricultural sector because Indonesia has quite fertile land that can improve the economy in Indonesia through the agricultural sector. The purpose of this study was to determine the effect of product quality and brand image on purchasing decisions for ABC brand instant chili sauce products in Kediri City. The sampling technique in this study is non-probability using purposive sampling technique, so that the number of samples needed is 108 respondents. The research method used in this research is quantitative. The data analysis technique in this study uses Part Least Square (PLS). The results of this study indicate that product quality and brand image have a significant (positive) influence on purchasing decisions for ABC brand instant chili sauce products in Kediri City.

**KEYWORDS:** Product Quality; Brand Image; Purchase Decision.

### INTRODUCTION

Indonesia is an agrarian country or a country where the majority of the population works in the agricultural sector. This is because Indonesia has quite fertile soil because it contains a lot of minerals or soil nutrients that make various types of plants grow and develop well, one of it is chili. So that the agricultural sector can help improve the economy in Indonesia. In addition, Indonesia is also one of the countries where the majority of the population is a lover of spicy food. This is because the Indonesian tongue is accustomed or familiar with spicy cuisine. There are many preparations or culinary specialties of Indonesia that are famous for their spiciness for example, dendeng balado, sambal matah and seblak.

The increasingly busy activities of people in Indonesia have made consumers need an instant, fast and practical food product. By looking at the situation environment, both from teenagers, young people and even adults who like spicy dishes. One of the instant processed products that is often used in daily needs as a companion or mixture of dishes derived from chili is chili sauce.

Currently, chili sauce products have considerable market potential. One of them is instant chili sauce which has packaged. Because chili sauce in packaging is considered more practical or easy to find and easy to carry when travelling. With the existence of considerable market potential, it causes competition between instant chili sauce companies. So that many companies create and develop processed instant chili sauce products.

Based on Top Brand data, it provides brand comparison results, one of the diamond chili sauces that has continued to decline from 2019 to 2022 is the ABC brand instant chili sauce. Starting from 2019, the ABC brand instant chili sauce obtained 65.80%, then in 2020 it decreased by 61.00%, in 2021 it decreased again by obtaining 59.10%, in 2022 there was a decrease again to 57.30%, until in 2023 there was still a decrease of 53.20%.

According to pre-survey data conducted by researchers in Kediri City, it is suspected that the cause of the decline in ABC brand instant chili sauce products is product quality and brand image on purchasing decisions. Product quality is something that can be offered to the market with the aim that the product is noticed, owned, used and consumed by consumers to meet their daily needs. Product quality is also important in developing a business. With the quality of the products offered by the company, consumers expect instant chili sauce products in packaging that suits the needs of consumers.

In addition to product quality, brand image is also suspected to be the cause of the decline in ABC brand instant chili sauce products. A brand is a symbol or design that is used to identify a product, besides that brands are used to help consumers or customers recognize the products offered by a company. Therefore, the brand image according to (Islamiyah and Soebiantoro 2022) is able to influence consumers to decide on a purchase. This happens because of the perception of consumers in buying

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products. If the brand image in a company already has a good name and view in the minds of consumers, it will get positive value in the future.

Based on the description of the phenomenon related to the decline in ABC instant chili sauce products, research is needed on the effect of product quality and brand image on purchasing decisions for instant chili sauce products in Kediri City.

### **LITERATURE REVIEW**

#### **Product Quality**

Product quality is one of the things that is quite important for companies to pay attention to, because product quality is one of the main things to increase competitiveness and provide satisfaction to consumers (Santoso et al. 2019). According to Razak in (Anam et al. 2020) product quality is a characteristic of a product, where product quality can contribute to the ability to fulfill demand.

Meanwhile, according to (Magdalena and Winardi 2020), product quality is one of the factors that can influence purchasing decisions by offering or improving product quality in accordance with what customers or consumers expect. In addition, Riyono in (Riana Fatmaningrum et al. 2020) says that product quality is something that can be offered to the market to get attention, buy, consume or use and can meet consumer needs.

From the above understanding, it can be concluded that product quality is a form of effort or ability of a product to continue to develop in order to provide good function and long durability, and continue to make improvements to meet the wants and needs of consumers to feel satisfied so that these products are able to compete with other products.

#### **Brand Image**

Brand image is something that can help companies to expand product lines and develop a specific market position for a product. In addition, brand image is defined as an image of a product in the minds of consumers (Siregar 2019). Mulyono in (Anam et al. 2020) says that brand image is an asset and liability, because brand image can increase or decrease value with the availability of products or services to consumers. With the attributes and benefits provided by a company's brand image, the characteristics that have been attached to a brand will be different from other competitors.

Meanwhile, according to (Ade Irawan 2021) brand image is one of the important things for companies, this is because brands give identity to the products that will be sold by a company. In addition, according to (Rahmawati and Fitriyah 2022) argue that brand image is used as a consumer information center to obtain information and assess how good or bad a product is.

Based on some of the above understanding, it can be concluded that brand image is one of the important things in a company, because with a brand image we can recognize the identity of a product. In addition, brand image is also one of the reasons for developing or improving a product brand. Where the brand image provided is good, it can be recognized by many people and vice versa, if the brand image of a product is bad, it will reduce the value of a product.

#### **Purchase Decision**

Purchasing decisions are part of consumer behavior, about how an individual, group or organization selects, buys, uses, and how goods and services, ideas or experiences satisfy their needs and wants (Ruliansyah 2020). According to Padmanty in (Magdalena and Wilzarwan 2020) purchasing decisions are a concept where consumers decide to purchase certain products to obtain the benefits offered by a product from the company.

Meanwhile, according to Daulay in (Nurlaila 2021) that purchasing decisions are a problem-solving process consisting of analyzing or recognizing needs and wants, searching for information, evaluating sources of selection of alternative purchases, purchasing decisions, and behavior after making a purchase. In addition, brand image according to (Liswandany and Fitriyah 2022) is a stage where consumers have alternative choices in deciding whether or not to buy the product.

From the above understanding, it can be concluded that purchasing decisions are consumer behavior in processing or selecting from several existing options, becoming a decision to purchase a product that will be used or consumed.

#### **Relationship between Product Quality and Purchasing Decisions**

Product quality is something that can be offered to the market with the aim that the product is noticed, owned, used and consumed by customers to meet the needs of consumers (Setianingsih 2018). This means that product quality is the ability of a product to work according to needs such as product quality that is durable, reliable, easy to use, and other characteristics. In addition, product quality is expected to be able to meet customer needs with the aim of attracting the attention of consumers to use a product to increase purchasing decisions for that product. Thus, product quality is related to the decision to purchase the product offered.

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Hypothesis 1: Product quality is thought to have a positive effect on purchasing decisions for instant chili sauce brand ABC in Kediri City.

## Relation between Brand Image and Purchasing Decision

Brand image is a perception and belief held by consumers, where the brand image will be embedded in the memory of consumers (Salsabila, Maskur, and Stikubank Semarang 2022). It can be interpreted that brand image is based on a consumer's thoughts and feelings towards a particular product. So that the brand image is said to be a symbol or identification that is remembered by consumers. Where if a product has a good brand image, consumers will make purchasing decisions on that product. Thus, brand image is related to purchasing decisions.

Hypothesis 2: Brand Image is thought to have a positive effect on Purchasing Decisions for instant chili sauce brand ABC in Kediri City.

## RESEARCH METHODS

This research was conducted in Kediri City. The population determined in this study were consumers of instant chili sauce brand ABC who live in Kediri City. The sampling technique in this study is non probability using purposive sampling technique, by distributing questionnaires using google form so that the number of samples needed is 108 respondents. The scoring technique used to measure indicators on this research questionnaire is a Likert scale of 1-5. In this study, the data analysis technique used was Part Least Square (PLS).

## RESEARCH RESULT AND DISCUSSION

The questionnaire used as a data collection method consists of several statements for each indicator of Product Quality (X1), Brand Image (X2), and Purchasing Decisions (Y). The questionnaire that has been made will be distributed to respondents, namely consumers of instant chili sauce brand ABC who live in Kediri City. Through the distribution of questionnaires made by researchers, obtained the results of answers from 108 respondents

**Table 1. Respondent Identity**

No.	Age	Total	Percentage
1.	17-21 Tahun	19	17,6%
2.	22-26 Tahun	61	56,5%
3.	27-31 Tahun	9	8,3%
4.	32-36 Tahun	6	5,6%
5.	>36 Tahun	13	12%
<b>Total</b>		<b>108</b>	<b>100%</b>

Based on the table of the number of respondents from consumers of ABC brand instant chili sauce products in Kediri City, the majority are aged 22-26 years as many as 61 consumers, with a percentage of 57.3%. While consumers with the least age range are consumers who have ages 32-36, totaling 6 consumers with a percentage of 5.6%. Meanwhile 66.7% are female, and the remaining 33.3% are male.

In this study, to determine the results of convergent validity between indicators and variables obtained through outer loading. The function of outer loading itself is to know the magnitude of the factor loading value, where the modeling uses all reflective indicators, so the table used is the outer loading output. The following is the outer loading table used in this study.

**Table 2. Outer Loading**

	Factor Loading (O)	Sample (M)	Mean	Standard Deviation (STDEV)	Standard (STERR)	Error T Statistics ( O/STERR )
<b>X1.1 &lt;- KUALITAS PRODUK (X1)</b>	0,809227	0,811856		0,049293	0,049293	16,416794
<b>X1.2 &lt;- KUALITAS PRODUK (X1)</b>	0,818453	0,822487		0,049805	0,049805	16,433141
<b>X1.3 &lt;- KUALITAS</b>	0,902543	0,902796		0,026501	0,026501	34,056987

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PRODUK (X1)						
X1.4 <- PRODUK (X1)	KUALITAS	0,878535	0,879308	0,021286	0,021286	41,273148
X1.5 <- PRODUK (X1)	KUALITAS	0,599518	0,599911	0,092160	0,092160	6,505195
X2.1 <- CITRA MEREK (X2)		0,897598	0,893842	0,029719	0,029719	30,202530
X2.2 <- CITRA MEREK (X2)		0,904180	0,906540	0,017617	0,017617	51,322884
X2.3 <- CITRA MEREK (X2)		0,925697	0,925269	0,017122	0,017122	54,063558
Y1.1 <- PEMBELIAN (Y)	KEPUTUSAN	0,889360	0,888988	0,020376	0,020376	43,647886
Y1.2 <- PEMBELIAN (Y)	KEPUTUSAN	0,906547	0,903269	0,029268	0,029268	30,973852
Y1.3 <- PEMBELIAN (Y)	KEPUTUSAN	0,898281	0,899735	0,027548	0,027548	32,607562
Y1.4 <- PEMBELIAN (Y)	KEPUTUSAN	0,840469	0,840057	0,030864	0,030864	27,231034

In this study, the validity of indicators is measured by looking at the Factor Loading value, which is in the outer loading table. Factor loading shows the correlation between indicators with variables, it can be said that the validity is sufficient if it is greater than 0.5 and or the T-Statistic value is greater than 1.96. Based on table 2, it can be seen that all reflective indicators on the Product Quality (X1), Brand Image (X2), and Purchase Decision (Y) variables show factor loading (original sample) greater than 0.50 and or significant (T-Statistic value greater than 1.96). Thus the estimation results of all indicators have met convergent validity or their validity is considered good.

### Table 3. Average Variance Extracted (AVE)

The next measurement model is the Average Variance Extracted (AVE) value, which is a value that shows the size of the indicator variance located on the latent variable. Convergent AVE values greater than 0.5 indicate good validity adequacy for latent variables. Meanwhile, the reflective indicator variable can be seen from the AVE value for each construct (variable). If the AVE value of each structure is greater than 0.5, it is said to be a good model.

### Table 3. Average Variance Extracted (AVE)

	AVE
CITRA MEREK (X2)	0,826713
KEPUTUSAN PEMBELIAN (Y)	0,781522
KUALITAS PRODUK (X1)	0,654109

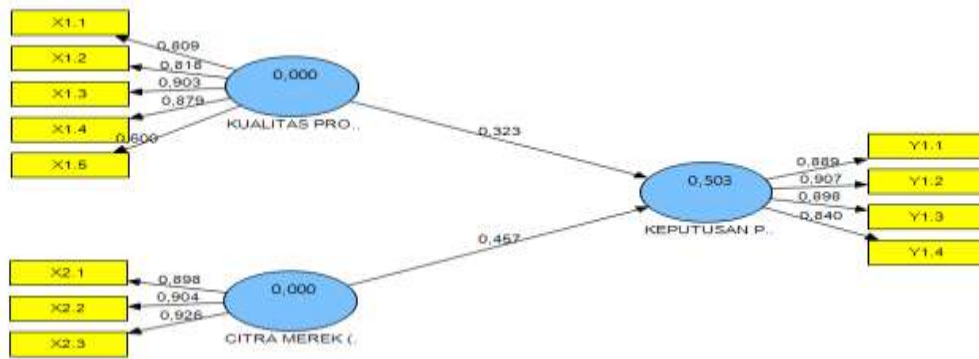
Based on table 3, it can be seen that the AVE test result for the Product Quality variable (X1) were 0.654109, the Brand Image variable (X2) was 0.826713, and the Purchasing Decision (Y) was 0.781522. The value of the three variables shows a value greater than 0.5 so that overall the variables in this study can be said to have good validity.

### Table 4. Composite Reliability

	Composite Reliability
CITRA MEREK (X2)	0,934682
KEPUTUSAN PEMBELIAN (Y)	0,934625
KUALITAS PRODUK (X1)	0,902816

In table 4, the Composite Reliability test results show that the Product Quality variable (X1) is 0.902816 and the Brand Image variable (X2) is 0.934682 and the Purchasing Decision (Y) is 0.934625. These three variables show a Composite Reliability value above 0.70 so that it can be said that all variables in this study are reliable.

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**Table 5. R-Square (R<sup>2</sup>)**

	Composite Reliability
CITRA MEREK (X2)	0,934682
KEPUTUSAN PEMBELIAN (Y)	0,934625
KUALITAS PRODUK (X1)	0,902816

In this table, it is known that the R value<sup>2</sup> is 0.503480, so it can be interpreted that the Purchasing Decision is influenced by the Product Quality and Brand Image variables by 50.35%, while the remaining 49.65% is influenced by other variables outside this study (other than Product Quality and Brand Image).

In this study, hypothesis testing was carried out through a direct effect significance test with the aim of testing the effect of the independent variable on the dependent variable. Hypothesis testing is carried out through 3 stages of testing, such as t-test (t-statistic), p-values, and path coefficients. The test results can be seen as follows.

**Table 6. Path Coefficients**

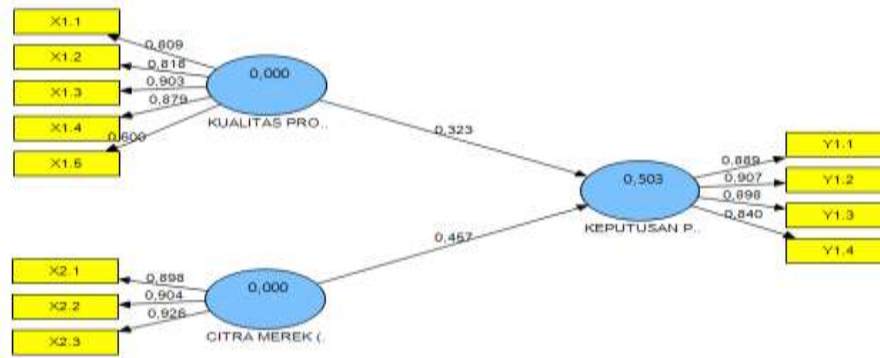
	Path Coefficients (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STERR )	P Values
KUALITAS PRODUK (X1) -> KEPUTUSAN PEMBELIAN (Y)	0,322666	0,335733	0,080829	3,991958	0,000
CITRA MEREK (X2) -> KEPUTUSAN PEMBELIAN (Y)	0,457452	0,453890	0,077957	5,868009	0,000

Based on table 6, it can be concluded that the hypothesis that product quality has a positive effect on purchasing decisions can be accepted, with path coefficients of 0.322666 and a T-statistic value of 3.991958 greater than  $Z \alpha = 0.05$  and a P-Value of  $0.000 < 0.05$ , the results are significant (positive). Brand Image has a positive effect on Purchasing Decisions can be accepted, with path coefficients of 0.457452 and a T-statistic value of 5.868009 greater than  $Z \alpha = 0.05$  and a P-Value of  $0.000 < 0.05$ , the results are significant (positive).

The results of the estimation and measurement model of this study in PLS are as follow:

In the PLS output picture above, it can be seen the magnitude of the loading factor value for each indicator which is above the arrow between the variable and the indicator and can be seen the magnitude of the path coefficients which are above the arrow line between the exogenous variables and the endogenous variables. In addition, it can be seen the amount of R-Square which is right inside the circle of endogenous variables (Organizational Commitment variables).

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### Effect of Product Quality (X1) on Purchasing Decisions (Y)

Based on the results of this study, it shows that product quality has a positive and significant influence on purchasing decisions. So it can be seen that the higher the product quality, the higher the purchasing decision. In this study, conformity to specifications is the biggest factor in influencing purchasing decisions. From this it can be seen that the ABC brand instant chili sauce product has product suitability in terms of packaging design and product performance to match consumer demand and be of interest to consumers. thus influencing purchasing decisions for ABC brand instant chili sauce in Kediri City. The results of this study are in accordance with research conducted by (Anam et al. 2020). In this study, it was suggested that product quality has a positive and significant effect on purchasing decisions. In addition, the results of this study are also in line with the results of research conducted by (Soebiantoro and Sari 2021) and (Efendi and Aminah 2023) which state that product quality has a positive and significant effect on purchasing decisions.

### The Effect of Brand Image (X2) on Purchasing Decisions (Y)

Based on the results of the analysis of this study, it shows that brand image has a positive and significant influence on purchasing decisions. So it can be seen that the higher the brand image, the higher the purchasing decision. In this study, user image is the biggest factor in influencing purchasing decisions. From this it can be seen that the ABC brand instant chili sauce product is in accordance with the user's image in terms of good taste. So that consumers will continue to remember the taste given and influence purchasing decisions for instant chili sauce brand ABC in Kediri City. This research is in line with research conducted by (Shofwan, Aryani, and Nastiti 2021) which states that brand image has a positive and significant effect on purchasing decisions. In addition, this research is also in accordance with research conducted by (Rahmawati and Fitriyah 2022) and (Islamiyah and Soebiantoro 2022) which states that brand image has a positive and significant effect on purchasing decisions.

### CONCLUSIONS

Based on the results of the research conducted, it can be concluded that the higher product quality and brand image, the higher the purchasing decision will be. This shows that product quality and brand image have a contribution to purchasing decisions for ABC brand instant chili sauce in Kediri City. The advice that can be given to the company is that it is expected to continue to improve product suitability in terms of packaging design and product performance to match consumer demand. In addition, the company must also improve the user image of good taste with the aim that consumers continue to remember the taste given by the ABC brand instant chili sauce in Kediri City. Then for further researchers, the authors hope that the results of this study can be used as a view in conducting research related to the influence of other unknown variables besides product quality and brand image.

### REFERENCES

- 1) Ade Irawan, Indra. 2021. "Pengaruh Kualitas Produk, Citra Merek Dan Harga Terhadap Keputusan Pembelian Kopi Pada Aplikasi Online Dimasa Pandemi Covid-19." *Jurnal Ilmiah Manajemen* 7 (1): 17–32.
- 2) Anam, Muhammad Syariful, Dian Luthvita Nadila, Tara Ayu Anindita, and Rina Rosia. 2020. "Pengaruh Kualitas Produk, Harga Dan Brand Image Terhadap Keputusan Pembelian Produk Hand and Body Lotion Merek Citra." *Jesya (Jurnal Ekonomi & Ekonomi Syariah)* 4 (1): 120–36. <https://doi.org/10.36778/jesya.v4i1.277>.
- 3) Efendi, Farhan Bachtiar, and Siti Aminah. 2023. "Pengaruh Promosi Dan Kualitas Produk Terhadap Keputusan Pembelian Produk Skincare Skintific (Studi Pada Mahasiswa UPN 'Veteran' Jawa Timur)." *J-MAS (Jurnal Manajemen Dan Sains)* 8 (1): 762. <https://doi.org/10.33087/jmas.v8i1.1055>.



## The Effect of Product and Brand Image on Purchasing Decisions for Chili Sauce Products ABC Brand Instan in Kediri City

- 4) Islamiyah, Khoirunnisa', and Ugy Soebiantoro. 2022. "Pengaruh Citra Merek Dan Kualitas Produk Terhadap Keputusan Pembelian Pada Produk Mi Instan Sarimi (Studi Pada Mahasiswa Yang Sedang Kuliah Di Surabaya)." *Jurnal Ilmiah Universitas Batanghari Jambi* 22 (3): 1567. <https://doi.org/10.33087/jjubj.v22i3.2579>.
- 5) Liswandany, Felicia, and Zumrotul Fitriyah. 2022. "Pengaruh Lokasi Dan Word of Mouth Terhadap Keputusan Pembelian Pada Dolan Kopi Surabaya." *SEIKO : Journal of Management & Business* 5 (2): 2022–71. <https://doi.org/10.37531/sejaman.v5i2.1910>.
- 6) Magdalena, Maria, and Wilzarwan Wilzarwan. 2020. "Pengaruh Kualitas Produk Dan Citra Merek Terhadap Keputusan Pembelian Handphone Oppo Pada Toko Max-Indo Di Kota Padang." *Jurnal Pundi* 3 (3): 271. <https://doi.org/10.31575/jp.v3i3.178>.
- 7) Magdalena, Maria, and Suroso Winardi. 2020. "Pengaruh Kualitas Produk Dan Citra Merek Terhadap Keputusan Pembelian Pada Roti CV. Rima Bakery Di Kota Padang." *JURNAL PUNDI* 4 (1). <https://doi.org/10.31575/jp.v4i1.217>.
- 8) Nurlaila, Nopi. 2021. "Pengaruh Brand Image Dan Kualitas Produk Terhadap Keputusan Pembelian Produk Indihome Witel Medan."
- 9) Rahmawati, Hertika, and Zumrotul Fitriyah. 2022. "Pengaruh Brand Ambassador Dan Brand Image Terhadap Keputusan Pembelian Pada E-Commerce Blibli." <https://doi.org/10.28926/briliant.v7i4>.
- 10) Riana Fatmaningrum, Sakti, Muinah Fadhilah, Fakultas Ekonomi, and Universitas Sarjanawiyata Tamansiswa. 2020. "Pengaruh Kualitas Produk Dan Citra Merek Terhadap Keputusan Pembelian Minuman Frestea" 4 (1).
- 11) Ruliansyah, Fauzi. 2020. "Pengaruh Kualitas Produk, Harga, Dan Citra Merek Terhadap Keputusan Pembelian Sepeda Motor (Studi Kasus Pada Konsumen Sepeda Motor Yamaha Di Dealer Johar Baru Jakarta Pusat)."
- 12) Salsabila, Aisyah, Ali Maskur, and Universitas Stikubank Semarang. 2022. "Pengaruh Kualitas Produk, Citra Merek, Persepsi Harga Dan Kualitas Layanan Terhadap Keputusan Pembelian Mie Gacoan (Studi Pada Pelanggan Mie Gacoan Di Kota Semarang)." *SEIKO : Journal of Management & Business* 5 (1): 2021–2156. <https://doi.org/10.37531/sejaman.v5i1.1902>.
- 13) Santoso, Joko Bagio, Kata Kunci, Kualitas Produk, Kualitas Pelayanan, Kepuasan Harga, Dan Konsumen, and Konsumen Loyalitas. 2019. "Pengaruh Kualitas Produk, Kualitas Pelayanan, Dan Harga Terhadap Kepuasan Dan Loyalitas Konsumen (Studi Pada Konsumen Geprek Benu Rawamangun)." Vol. 16.
- 14) Setianingsih, Wahyu Eko. 2018. "Pengaruh Kualitas Produk, Harga, Dan Citra Merek Keputusan Pembelian Konsumen," 252–61.
- 15) Shofwan, Thoriq, Lina Aryani, and Heni Nastiti. 2021. "Pengaruh Harga, Kualitas Produk, Dan Citra Merek Terhadap Keputusan Pembelian Motor Honda Beat." Vol. 2.
- 16) Siregar, Nurintan Asyiah. 2019. "Analisis Faktor-Faktor Yang Mempengaruhi Loyalitas Pelanggan Pasar Dengan Kepuasan Sebagai Variabel Intervening Di Toko Abang-Adik." *Jurnal Benefita* 4 (2): 363. <https://doi.org/10.22216/jbe.v4i2.1555>.
- 17) Soebiantoro, Ugy, and Sari. 2021. "Pengaruh Kualitas Produk, Persepsi Harga, Dan Citra Merek Terhadap Keputusan Produk Teh Gelas Di Kota Surabaya."



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## Book Review of "*Script on Bamboo and Silk - Ancient Chinese Textual Records*"



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### INTRODUCTION

In the flow of history, ancient writing mediums are akin to precious relics, carrying the legacy of millennia of wisdom and culture. A book titled "*Script on Bamboo and Silk - Ancient Chinese Textual Records*," published by Century Library in 2004, serves as a window through time, guiding us on a marvelous journey into the world of ancient Chinese writing mediums. The author of this book, Qian Cunxun, with his profound research and insightful perspectives, presents to us the historical trajectory of ancient writing mediums such as bamboo slips and silk fabric, exploring their significance and influence in the transmission of ancient culture.

Ancient Chinese textual records form an extensive ocean, spanning from the earliest oracle bone script to later paper writing. Within this expanse, bamboo slips and silk fabric, as representatives of ancient writing mediums, uniquely radiate the brilliance of civilization. Bamboo slips once bore witness to the clash of ideas during the Warring States period and the competition between Legalist and Confucianist schools of thought. Silk fabric, on the other hand, provided a sturdy foundation for literary and artistic works such as calligraphy, poetry, and more. Today, the book "*Script on Bamboo and Silk - Ancient Chinese Textual Records*" guides us into the splendid realm of these writing mediums, offering us an opportunity to delve deep into their crafting techniques, preservation methods, and applications across various domains of ancient society.

As Qian Cunxun has articulated, bamboo slips and silk fabric played significant roles in various aspects of ancient politics, culture, and economy. Bamboo slips, serving as the primary medium for political records, documented laws, decrees, and more, providing a solid foundation for the continuity of political systems. Meanwhile, silk fabric assumed a distinct role in the realm of culture, serving as a medium for artistic creations like painting and calligraphy. Simultaneously, in the domain of religion, silk fabric was utilized to transmit religious scriptures, becoming a medium for the dissemination of faith, and finding widespread use in the preservation of classics and the recording of religious rituals.

Contemporary research and understanding of ancient Chinese culture are akin to an unfathomable universe, and "*Script on Bamboo and Silk - Ancient Chinese Textual Records*" has opened the gateway to this universe for us. Through in-depth exploration of ancient writing mediums, we can better grasp the diversity and richness of ancient society, comprehending its ideologies, arts, and systems. Qian Cunxun's rigorous research methods and profound analysis in the book enable us to gain a comprehensive understanding of the historical significance and cultural value of ancient writing mediums such as bamboo slips and silk fabric. In this era of information explosion, we are fortunate to delve into the world of ancient writing through this book, to sense the essence of that era, and to better comprehend the origins and inheritance of Chinese culture.

### 1. Historical background and significance

The transmission of ancient Chinese writing is akin to a magnificent cultural palace, where the writing mediums serve as the sturdy pillars upholding this grand edifice. The book "*Script on Bamboo and Silk - Ancient Chinese Textual Records*," with its profound

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research and rich historical context, reveals to us the evolution and value of these writing mediums.

The developmental history of ancient Chinese writing mediums is indeed rich and varied, spanning different materials, techniques, and application stages from ancient times to the present. Oracle bone script, as the earliest form of writing, was inscribed on tortoise shells and animal bones, documenting information about ancient society's rituals and politics. As time progressed, mediums like bamboo slips and silk fabric gradually emerged, becoming essential tools for ancient people to record their thoughts, culture, and history. The book points out that the production and usage of bamboo slips have a long history in ancient China, serving as crucial mediums for cultural heritage. Silk fabric, due to its lightweight and thin texture, gradually replaced bamboo slips and became the preferred material for writing and painting.

According to Qian Cunxun's historical research, silk fabric writing reached its zenith during the Qin and Han dynasties, displaying a diverse array of cultural connotations.

These ancient writing mediums not only recorded history but also profoundly influenced various domains of ancient society. Bamboo slips played a pivotal role in ancient politics, being used to record important documents such as laws and decrees. Qian Cunxun points out in the book that a considerable number of bamboo slips from the Warring States period have been discovered, indicating the significance of bamboo slips in the ancient political system. On the other hand, silk fabric assumed a unique role in the cultural sphere, serving as a medium for literary works like poetry and calligraphy. Confucius's "the Book of Songs" serves as an example of silk fabric writing, showcasing the radiant brilliance of ancient literature. Furthermore, in the realm of religion, silk fabric was utilized to transmit religious scriptures, becoming a medium for the dissemination of faith. The silk fabric writing culture exhibited particular prominence in religious aspects, widely employed for the transmission of religious classics and the documentation of religious rituals.

In the present day, the book "Script on Bamboo and Silk - Ancient Chinese Textual Records" offers a crucial window for us to comprehend ancient Chinese culture, aiding us in delving into the history and impact of ancient writing mediums, and allowing us to experience the depth of history and the continuity of culture. As Qian Cunxun has expressed, writing mediums serve as bridges connecting the ancient with the modern.

### 2. Production and application of bamboo slips and silk

Bamboo slips and silk fabric, as representatives of ancient writing mediums, bear rich historical and cultural significance. "Script on Bamboo and Silk - Ancient Chinese Textual Records" delves into the production and application of these mediums, presenting how ancient people employed these materials for writing and reading, as well as highlighting their significance in cultural transmission.

Bamboo slips, as a significant writing material, possess distinct crafting techniques and preservation methods. In the book, Qian Cunxun intricately describes the process of crafting ancient bamboo slips, stating: "The crafting process of bamboo slips includes steps like bamboo preparation, polishing, cutting, and weaving, each demanding exquisite craftsmanship." This intricate crafting process reflects the high regard ancient people held for their writing medium. Simultaneously, the preservation of bamboo slips was of utmost importance. The efforts of ancient individuals in preserving bamboo slips involved insect-proof treatment known as "dyeing," aiming to extend the lifespan of the bamboo slips. These meticulous crafting and preservation methods provide us with invaluable insights into ancient writing mediums.

Silk fabric, as another significant writing medium, also possesses its unique production and application characteristics. The lightweight and thin texture of silk fabric bestows upon it excellent writing properties, making it the preferred material for creative endeavors of ancient literati. The book points out, "The soft and lightweight nature of silk fabric makes it easy to carry, store, and absorb ink. It demonstrates cleanliness and resistance to erosion, exhibiting qualities that bamboo and wood cannot compete with. Since the Warring States period, 'bamboo and silk' has commonly represented recorded words." This highlights the significant role of silk fabric writing in the development of ancient culture.

As ancient writing mediums, bamboo slips and silk fabric not only differ in their techniques and production but also exhibit diverse applications. Bamboo slips predominantly played a crucial role in the realms of politics and law, extensively employed for bureaucratic documentation during the Warring States period, thereby serving as vital agents in the transmission of official documents and legal systems. This further emphasizes the political significance of bamboo slips. On the other hand, silk fabric had a more substantial impact in the cultural and literary domains. The book references Confucius's "Book of Songs" as an example of

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silk fabric writing, underlining the contribution of silk fabric to ancient literary creation. Moreover, in the religious sphere, silk fabric was utilized to transmit religious scriptures, becoming a medium for the propagation of faith.

In conclusion, bamboo slips and silk fabric, as ancient writing mediums, showcase the wisdom and creativity of ancient people through their production and application. These writing mediums not only recorded the politics, law, culture, and religion of ancient society but also reflect the efforts and aspirations of ancient individuals in the preservation and transmission of writing.

### **3. The application of writing media in many fields in ancient society**

In the vast river of history, bamboo slips and silk fabric, two ancient writing mediums, shine like glistening pearls, embellishing the blueprint of ancient China's civilization. The book "Script on Bamboo and Silk - Ancient Chinese Textual Records" takes us into the multifaceted applications of these two mediums, profoundly showcasing their significant roles in various domains of ancient politics, culture, economy, and religion.

The ancient political sphere was one of the crucial domains where bamboo slips and silk fabric played significant roles. Bamboo slips held key positions in governmental offices and official documents. They recorded a plethora of laws, decrees, and other crucial documents, providing robust support for the development and inheritance of legal systems. As ancient writing mediums, bamboo slips were extensively used in political, scholarly, and legal contexts. Qian Cunxun's book states, "In the Qin Dynasty, bamboo slips were commonly used to compile laws and decrees. The laws enacted in the Qin Dynasty were inscribed on bamboo strips, preserved for later generations to read." (Qian Cunxun, 2004) This highlights that bamboo slips, as a writing medium, played a significant role in maintaining the ancient political system and transmitting legal frameworks. Silk fabric also had a distinctive application in the political sphere, where decrees and legal documents made from silk fabric were widely used in ancient China. As Qian Cunxun's book states, "Bamboo slips were often used for drafts, while silk fabric was used for the final version." The use of silk fabric writing in the political domain underscores its advantages in terms of authority and formality.

The realm of ancient culture served as a flourishing stage for the development of bamboo slips and silk fabric. These writing mediums carried rich cultural significance. Bamboo slips were utilized to record literary works, philosophical treatises, and more, providing valuable materials for the inheritance of ancient culture. Meanwhile, silk fabric played a distinct role in cultural creation, particularly in the realm of poetry. Confucius's "Book of Songs" serves as a prime example of silk fabric writing, showcasing the value of silk fabric in cultural transmission. Furthermore, silk fabric was used for portraying portraits, calligraphy, and other forms of artistic expression, offering a broad space for artistic creation. The diverse applications of silk fabric writing in the cultural domain contributed to the multifaceted nature of ancient culture.

The ancient economic sphere was also closely intertwined with the influence of bamboo slips and silk fabric. Bamboo slips played a crucial role in economic exchanges and commercial contracts. Ancient merchants often used bamboo slips to record information about goods and transaction details, providing convenience for commercial activities. Silk fabric, on the other hand, found widespread use in financial records, commercial documents, and more. The application of silk fabric writing in the economic domain contributed to the development and prosperity of ancient commercial activities. These practical examples underscore the significance of bamboo slips and silk fabric in the ancient economic realm.

The realm of religion is also one of the domains where bamboo slips and silk fabric play a significant role. Bamboo slips were widely used for the transmission and recording of religious scriptures.

In ancient religious rituals, bamboo slips carried religious scriptures that provided a foundation for the spread and promotion of beliefs. Similarly, silk and cloth also played a significant role in the field of religion, and were used to produce religious classics, Buddhist scriptures, and other important documents.

Bamboo slips and silk, as primary mediums of writing in ancient times, played a crucial role across various fields such as politics, culture, economy, and religion. They recorded the political laws, cultural arts, economic activities, and religious beliefs of ancient societies, and have a great contribution to their development and inheritance. Through the verification and citations provided by Qian Cunxun, we gain a deeper understanding of the applications of bamboo slips and silk in various ancient fields, as well as their profound impact on ancient society.

### **4. Comparison of Bamboo Slips, Silk, and Other Mediums**

Among the writing mediums in ancient China, bamboo slips and silk were two important carriers and possessed distinct characteristics and advantages compared with other mediums like stone and paper.

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Bamboo slips, as one of the primary writing mediums in ancient times, were light and easy to carry. Scholar Zhang Cuiling noted that "The thinness and lightness of bamboo slips made it a common writing tool for ancient officials and scholars." (Zhang Cuiling, 2022) The convenience of bamboo slips made it widely used in fields such as official documents and legal systems. However, the production and preservation of bamboo slips were relatively intricate, making them susceptible to moisture and insect damage, thus hard to preserve.

In contrast, silk, another significant writing medium, was soft and smooth. Scholars Li Bangyu and others emphasized in their research, "The smooth texture of silk made it suitable for writing characters and patterns." (Li Bangyu et al., 2023) Silk played a significant role in the fields of writing creation and the dissemination of religious scriptures. Its flexibility made it suitable for creating scrolls, facilitating preservation and distribution. However, silk was comparatively delicate, easily affected by the environment, and required careful storage.

Compared with bamboo slips and silk, stone was a durable medium for inscriptions. Scholar Li Wenru mentioned, "Stone inscriptions can be preserved for a long time after carving and are resistant to natural deterioration." (Li Wenru, 2016) Stone inscriptions played a vital role in cultural heritage preservation, as they were not damaged by humidity and insect damage, so they were more suitable for long-term preservation. However, the process of stone inscription was cumbersome and costly, and it was hard to modify and update.

As a later-developed writing medium, paper was light and ease to produce. Scholar Wu Dashun emphasized, "The emergence of paper has greatly promoted the popularization of writing." (Wu Dashun, 2013) The advent of paper made writing more convenient and became a driving force for development of ancient learning and culture. However, paper was relatively fragile and was not suitable for long-term preservation, as it was susceptible to environmental damage.

In conclusion, bamboo slips, silk, stone, and paper, as ancient writing mediums, each possessed distinct characteristics suitable for different fields and purposes. Bamboo slips and silk offered convenient writing characteristics suitable for official documents and calligraphy and other fields; stone inscriptions were durable and fit for long-term preservation; the emergence of paper promoted the popularization of writing. Through the rich historical materials presented in Qian Cunxun's writings, we gain a deeper understanding of the use of these mediums in different periods, as well as their characteristics, advantages, and disadvantages. Bamboo slips and silk played a vital role in the inheritance of writing in ancient society, providing a solid foundation for the spread and development of culture.

### **5. Academic Development and the Culture of Book Collection**

The flourishing of ancient academic development and book collection culture had a significant impact on writing mediums, and the roles played by bamboo slips and silk as ancient writing mediums cannot be ignored. The book "Writing on Bamboo and Silk: The Ancient Chinese Records" discusses in depth these factors and contributions to writing mediums through relevant scholars and their research findings.

The development of ancient academics was one of the driving forces for the prosperity of bamboo slips and silk. The prosperity of ancient academics promoted the continuous innovation of writing mediums. Ancient scholars, in their pursuit of knowledge inheritance and development, created more efficient writing methods. Among them, bamboo slips and silk, as primary writing mediums, laid a solid foundation for the dissemination and exchange of academic knowledge. Ancient scholars like Ouyang Xiu and Wang Anshi wrote essays, notes, and these works on bamboo slips and silk contributed to the prosperity of ancient academics. Additionally, silk, as a writing medium, also played a unique role in academic creation. Scholar Liu Guozhong (2004) noted that silk writing is delicate and smooth, suitable for writing complex academic content, and provides a good writing platform for academic research.

The culture of book collection played a pivotal role in the preservation of ancient writing mediums. The protection and preservation of writing media by ancient bibliophiles left a rich cultural heritage for future generations. Treating materials like bamboo slips and silk as precious cultural assets, they meticulously preserved and organized important documents, providing valuable resources for future research. The development of ancient book collection culture not only enriched the content of writing mediums but also provided valuable clues for future research and understanding. Silk writing played a crucial role in book collection culture as well. Scholar Liu Guozhong (2004) highlighted, "Because of its softness, silk writing is suitable for scroll-style book collection, which provides convenience for the inheritance of ancient book-collecting culture." The scroll format of silk writing

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provided more options for the preservation and inheritance of ancient book collection culture.

The prosperity of ancient academic development and book collection culture provided fertile ground for the growth of bamboo slips and silk. The prosperity of scholarship promoted innovation and application of writing mediums, while the inheritance of book collection culture ensured their preservation and dissemination. The combination of these two promoted the diverse and rich of ancient writing mediums, making significant contributions to the prosperity of ancient Chinese culture.

In conclusion, the impact of ancient academic development and book collection culture on writing mediums promoted the prosperity and development of bamboo slips and silk. Reading this book gives us an understanding of the contributions of writing mediums and how they facilitated the flourishing of ancient Chinese culture. The exploration of ancient scholarship and the preservation of books collection provided a vital foundation for heritage preservation, offering valuable resources for us to know the ancient society.

### 6. Historical Events and Writing Mediums

In the course of history, bamboo slips and silk, like sparkling pearls, adorned the tapestry of ancient China's civilization. Through specific historical events or figures, we can gain a deeper insight into the pivotal roles that bamboo slips and silk played in historical contexts, making monumental contributions to the development and continuity of ancient society. After reading this book, we can explore this practical application, enhancing our understanding of the relationships between bamboo slips, and silk in historical events.

A hallmark historical event is the unification of six states under China's ancient ruler, Emperor Qin, which established the great empire of the Qin Dynasty. Bamboo slips played a crucial role in this process. Scholar Bei Wen noted, "Emperor Qin adopted standardized writing and used bamboo slips to swiftly conveyed laws and edicts across the nation, realizing a unified political system." (Bei Wen, 1973) This highlights the practical value of bamboo slips in political communication and the transmission of legal systems. Using the convenience of bamboo slips, Emperor Qin facilitated the centralization of power, making a significant contribution to the evolution of China's ancient political system.

Moreover, the development of ancient academic research was also closely tied to the support of bamboo slips and silk. An illustrative example is Wang Xizhi the Wei-Jin period, who is known as a great master in the history of Chinese calligraphy. The poet Lu You once wrote, "Practice is more eloquent than theoretic knowledge." This sentence expresses the importance of practice and experience in writing mediums. The calligraphy of Wang Xizhi, often written on silk, exemplified in works like the renowned "The Orchid Pavilion," was closely tied to his distinctive calligraphic style. Wang Xizhi's choice of silk was intertwined with his unique artistic expression. By using silk, Wang Xizhi could freely showcase his calligraphy skills and artistic style, pushing the boundaries of calligraphy to new heights. His works disseminated through silk, garnered widespread attention and acclaim at that time and also had a profound impact on the development of calligraphy for generations to come. As a writing medium, silk offered Wang Xizhi and other calligraphers greater creative space and expressive power, promoting the prosperity and continuity of Chinese calligraphic art.

In addition to political communication and academic research, cultural exchange was another significant field of application for bamboo slips and silk in ancient society. In ancient times, the frequent cultural exchanges between China and neighboring countries were facilitated by bamboo slips and silk as vital mediums. For instance, the introduction of Buddhism into China was realized through silk writing. Buddhist scriptures initially arrived from India, and the lightweight property of silk made it an optimal medium for the dissemination of scriptures. Scholar Liu Guozhong (2004) pointed out, "Due to its softness, silk writing was highly suitable for the writing and promotion of Buddhist scriptures and classics." The introduction of Buddhist scriptures not only enriched Chinese culture but also propelled the development of silk as a writing medium. Through the dissemination of bamboo slips and silk, the thoughts and culture of Buddhism permeated Chinese society, leaving a profound impact on Chinese culture.

In addition to the above-mentioned fields, bamboo slips and silk also played an important role in medicine, education, art and other fields. In the field of medicine, ancient doctors often used bamboo slips to record medical knowledge, prescriptions, etc., contributing to the development and inheritance of medicine. In terms of education, bamboo slips and silk became tools for imparting knowledge, and students acquired knowledge by reading these written materials. In the field of art, the delicate texture of silk makes it an ideal carrier for art forms such as painting and embroidery, and works of art are passed on through the expressive force of silk.

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In short, bamboo slips and silk, as ancient writing media, played an important role in political communication, academic research and cultural exchange. Their application not only enriches ancient Chinese civilization, but also provides precious clues for us to better understand the development of ancient society. Through specific historical events and figures, we can see more clearly the practical application value of bamboo slips and silk in the ancient society, as well as their positive contribution to the progress and prosperity of ancient society.

### 7. The Contribution to Ancient Chinese Culture

*Writing on Bamboo and Silk - Ancient Chinese Written Records* presents a rich and colorful picture of ancient cultural inheritance through in-depth research on the two ancient writing medium of bamboo slips and silk. In contemporary times, the book shows a significance on both retrospectively the history and providing us with a rugged perspective of thinking.

As writing medium in ancient times, bamboo slips and silk carry a wealth of historical information and cultural connotations. The idea emphasized in the book is that bamboo slips are tools for recording information in political, economic, cultural and other fields, and it provides us with a valuable way to understand ancient society. These writing medium borne the thoughts, knowledge and wisdom of ancient people, and deeply portrayed their values and lifestyles in the long scroll of history. Through the citation and interpretation of historical materials, we can deepen our understanding of the unique role of bamboo slips and silk in ancient society, which provides us with valuable clues to decode the inheritance of ancient culture.

Bamboo slips and silk in ancient times are not only the medium of characters, but also the carriers of culture. As writing materials, bamboo slips and silk have inherited ancient cultural deposits and became important carriers of ancient cultural transmission. Scholar Liu Guozhong's viewpoint further emphasizes the role of bamboo slips and silk in the inheritance of ancient culture,

Through the study of bamboo slips and silk, we can have a deeper understanding of the continuation and development of ancient culture, so as to better understand our own cultural roots. (Liu Guozhong, 2004)

This book not only provides us with a new way of thinking, but also helps us to have a deeper understanding of the urgency of inheriting ancient culture, so as to better carry forward and inherit our traditional culture.

However, in the contemporary era, the viewpoint of this book also provides important inspiration for us to better grasp the importance of ancient cultural inheritance. Scholars such as Xie Guihua's view in the book is more specific,

Bamboo slips and silk are the treasure house of ancient culture, and we need to dig deeper into the treasures in them to provide more inspiration and reference for contemporary cultural research. (Xie Guihua et al., 2003)

The viewpoints expounded in this book provide us with a brand new perspective and research direction for understanding and studying ancient Chinese culture, which has a far-reaching impact on deepening contemporary cultural research.

In conclusion, *Writing on Bamboo and Silk - Ancient Chinese Written Records* enriches our understanding of ancient writing medium and highlights their importance in ancient society through in-depth research. This book not only reveals the diversity of ancient cultural inheritance, but also provides strong support for contemporary cultural studies. This in-depth research has provided us with new ideas and methods for recognizing, understanding and inheriting ancient Chinese culture, and has contributed precious resources and wisdom to the development of contemporary society and cultural inheritance.

### 8. Thinking and Comment

The book I have discussed about above is like an ancient gem that inlaid in the long river of history, shining with the precious light of ancient writing medium. Through detailed historical research and in-depth research, this book profoundly explores the importance and far-reaching influence of bamboo slips and silk, two ancient writing medium, in the inheritance of ancient Chinese culture. While this book puts forward many powerful points, I still have some doubts and opinions worth thinking about in some aspects.

First of all, I highly agree with the book's emphasis on the application of bamboo slips and silk in many fields and their significance in ancient society. As scholar Roy (2021) pointed out, "Bamboo slips and silk, as writing carriers, not only carry words, but also carry history and culture." This point is fully reflected in the book, and the influence of ancient society, politics, culture and academics is deeply analyzed. Through historical events and practical cases of figures, this book vividly demonstrates the practical applications of bamboo slips and silk slips in the fields of political law, academic research, cultural creation and other

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fields, which gives us have a deeper understanding of the value of these medium.

However, in this book's comparison of the characteristics of bamboo slips and silk in this book as well as the comparison with other writing medium, I think there is still room for further deepening. This book provides a detailed description of the characteristics of bamboo slips and silk, however, the advantages and disadvantages and applicability of different media may need to be discussed in depth in comparison with other medium such as stone and paper. For example, is the durability of inscriptions on gold and stone one of its main characteristics? What are the advantages of using paper over bamboo slips and silk? These issues may be further discussed by quoting more relevant scholars' research results to enrich the understanding of the characteristics of writing medium.

In addition, this book briefly expounds the role of bamboo slips and silk silk in ancient academic development and book-collecting culture. but there seems to be room for improvement in this analysis. As the carrier of knowledge inheritance, did bamboo slips and silk have a substantial impact on the dissemination and evolution of ancient academic thoughts? How does their position in ancient academic circles compare with other writing media? By citing the research results of more scholars, it may be possible to further explore these issues and enhance our understanding of the impact of ancient academic fields.

The book provides us with a new perspective and direction of thinking for understanding the inheritance of ancient Chinese culture, and its significance for contemporary research and understanding of ancient Chinese culture cannot be underestimated. Through an in-depth research on ancient writing medium, we are able to grasp the diversity and richness of ancient societies in a more comprehensive way, and further to understand their ideas, arts, and systems. As Qian Cunxun emphasizes in his book, bamboo slips and silk, as writing media, are both witnesses to history and inheritors of culture, carrying the wisdom and thoughts of ancient people and providing important clues for us to explore the mysteries of ancient culture.

Meanwhile, we can also better understand the development context of ancient Chinese society by deeply exploring the role of bamboo slips and silk in historical events. These writing medium are not only material carriers, but also medium of cultural transmission, carrying information on political systems, social concepts, religious beliefs and other aspects. Through the study of bamboo slips and silk, we can reveal the transformation and evolution of ancient society, understand the causal relationship, so as to better understand the complexity and multi-dimension of ancient society.

In addition, the discussion of bamboo slips and silk in the book also enlightens us that ancient society has achieved a certain degree of high development in terms of information dissemination and cultural exchange. Although there was a huge gap between the technical conditions at that time and modern times, ancient people achieved information transmission across time and space through media such as bamboo slips and silk, promoting communication and mutual learning between different regions and cultures. This also has important reference significance for the information dissemination and cultural exchange in contemporary society in the information age. We can draw inspiration from ancient wisdom and use modern technology to promote cultural dissemination and exchange.

In a word, we can not only have a clearer understanding of the practical application value of bamboo slips and silk in ancient society, but also have a better understanding of the development history and cultural inheritance of ancient society through this book. This book provides us with a window to ancient wisdom, provides strong support for contemporary research and understanding of ancient Chinese culture, and makes us more deeply aware of the importance and far-reaching influence of cultural inheritance. Under the guidance of the book, we can better explore the treasures of ancient culture and draw wisdom from it to contribute to the development of contemporary society and cultural inheritance.

### CONCLUSION

*Writing on Bamboo and Silk - Ancient Chinese Written Records* opens a rich picture of the inheritance of ancient Chinese culture for us through an in-depth study of ancient writing media such as bamboo slips and silk. The book comprehensively discusses the importance of this ancient Chinese writing medium in history, multi-field function and enlightenment to contemporary research, which enriches our cognition of ancient Chinese culture.

Bamboo slips and silk carry rich historical information and record political, economic, cultural and other aspects. We not only restore the ancient society, but also gain a deeper understanding of the wisdom and life of the ancients through the study of them. They are not only the transmitters of information, but also the inheritors of culture, triggering our deep thinking on the inheritance of contemporary culture.



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*Writing on Bamboo and Silk - Ancient Chinese Written Records* provides us with valuable resources and inspiration in terms of contemporary research and understanding of ancient Chinese culture. We can better understand the appearance of ancient society and the logic of cultural inheritance through in-depth research on writing medium such as bamboo slips and silk, so as to provide more perspectives and thinking directions for contemporary research. This book not only provides us with a new perspective to understand and study ancient Chinese culture, but also injects new vitality and impetus into contemporary research and understanding of ancient Chinese culture, and further stimulates our interest and exploration in ancient culture.

### REFERENCES

- 1) Bei, W. (1973). *The Historical Significance of Qin Shihuang's "Shu Tong Wenzhi"* Cultural Relic, (11),2-7.
- 2) Li, B.Y. & Xu, M.T. & Zha, S.Y, etc. (2023). *Exploring the Functions of Silk as a Written and Cultural Medium*. Jiangsu Silk, (03),41-45+37.
- 3) Li, W.R. (2016). *Analysis on the Influence of Gold and Stone on Ancient People's Aesthetic Interest*. Art Panorama, 2016(6):66-67.
- 4) Liu, G.Z. (2004). *Ancient Silk Texts*. Cultural Relics Publishing House.
- 5) Qian, C.X. (2006). *Script on Bamboo and Silk - Ancient Chinese Textual Records*. Shanghai Bookstore Publishing House.
- 6) Wang, Y. (2021). *A Brief Introduction to the Innovation Ecology of Ancient Chinese Culture* Journal of Humanities,2021(01):59-69.
- 7) Wu, D.S. (2013). *Research on the Development of Invention and Writing Function of Paper in Six Dynasties*. Library Theory and Practice, 2013(1):51-56.
- 8) Xie, G.H.& Shen, S.J.& Wu, W.L. (2003). *Discovery and Research of Bamboo and Silk In the 20th Century*. Historical Research, 2003(06):144-169+192.
- 9) Zhang, C.L. (2022). *Research on the Change of Document Carrier and the Formation and Development of Books in the Early Tang Dynasty*. Harbin Normal University.<https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202202&filename=1022491141.nh>



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## The Influence of Role-Playing Methods on the Social Skills and Self-Confidence of Grade V Elementary School Students



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**ABSTRACT:** This study aims to find out: (1) the effect of role-playing on students' social skills; (2) the influence of role-playing on student confidence; and (3) the effect of role-playing methods on students' social skills and self-confidence. This research is a pseudo-experimental research with a non-equivalent control group design. The population of this study was all grade V students of SDN Masbagik Selatan, Masbagik District, East Lombok District. The sample of this study was 52 students. Sample determination using cluster random sampling technique. Of the population to be sampled are 2 schools randomly. One school was determined as an experimental class using the role-playing method and one school was used as a control class using the lecture method. The classes sampled were class V SDN 2 Masbagik Selatan (experiment) and SDN 4 Masbagik Selatan (control). Research instruments in the form of questionnaires and observations. The data normality test was carried out using Kolmogorov-Smirnov, while the homogeneity test used Box's M test. The results showed that: (1) The role-playing method had a significant positive effect on students' social skills with a significance value of  $0.000 < 0.05$ ; (2) The role-playing method had a significant positive effect on students' confidence with a significance level of  $0.000 < 0.05$ ; (3) Roleplaying methods have a significant positive effect on students' social skills and confidence. The results of data analysis in this study show that there is a significant influence of role-playing methods on social skills and student confidence in social studies learning content of grade V elementary school students.

**KEYWORDS:** Role playing, social skills, confidence.

### I. INTRODUCTION

Education is all activities that an institution strives for students to be given in the hope of being able to have good competence and full awareness of bonds and social problems (Pristiwanti et al., 2022). Education can help students eradicate illiteracy by teaching students social skills, and mental abilities. (Rosyadi, 2022). Education in Indonesia has many levels, including elementary school education, which aims to teach students to be democratic and responsible citizens through social studies learning (Kartini & Dewi, 2020).

Learning is a process that can help students learn well, This process must involve students as the center of activities, and teachers must be able to create an interactive and educative learning environment (Kodariyati & Astuti, 2016). Learning is said to be successful if the teacher can deliver students to achieve the plan as expected, and one of the most important factors is the method used by the teacher (Dewi & Mukminan, 2016). Teachers must be able to innovate and create attractive classroom situations for students to create a conducive learning process (Ramadhani & Ayriza, 2019). To achieve learning objectives, elements such as planning and the use of learning methods must influence each other, to improve student learning outcomes in various subjects, and one of them is social studies learning (Wardani, 2016).

One component of the school curriculum is Social Sciences, which covers various branches of social sciences such as sociology, history, geography, economics, politics, law, and culture. Social studies learning is one of the studies in learning that began to be learned and taught at the first formal education level, namely elementary school. Social studies has several studies and discusses several phenomena or realities, concepts, and generalizations related to conflict and related to students' social lives (Hery et al., 2022). At the primary education level, social sciences focus on the relationship between people, to help students develop their skills (Santoso, 2016). In education, social studies can be defined as ideas that outline attitudes, knowledge, and social skills to build individuals who benefit society (S. Handayani et al., 2020).

Social skills are the ability to be attitudinally visible in actions, be able to establish, categorize, and organize information, to communicate orally, and in writing, and be able to cooperate with others, and adapt to changes in the

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environment (Anggraini et al., 2017). Social skills make students more courageous in speaking, expressing what they feel, and being able to find the right solution in solving their problems so as not to seek escape that is negative and can harm themselves and others (Anggraini et al., 2017). Social skills that students possess include good communication skills with others both verbally, and in writing, and being able to work together in small and large groups in interaction during the learning process in class (Alpian & Mulyani, 2020).

The teaching of social skills can develop creativity, increase motivation, increase social interaction with peers in learning, and encourage students to communicate more widely and freely (Alabsi, 2016). Some students do not acquire social skills appropriate for the development of psychological problems such as poorly established communication and rejection from peers, leading to anxiety, depression, and anger in childhood (Daraee et al., 2016). Social skills can be shaped by family, school, social environment, and individual characteristics such as language skills, communication skills, and self-confidence (Zaidi, 2017).

Self-confidence is the belief that a person holds in his ability so that he does not feel anxious when doing something, behaves politely to others, and has the desire to achieve and realize his strengths and weaknesses (Haliza & Nugrahani, 2021). Students need to have the confidence to realize their abilities to allow students to have great motivation and not easily surrender in facing challenges. So by having confidence, students will grow in their knowledge and abilities and will eventually become healthy and independent individuals (Sumiarsih & Novita, 2021).

Lack of confidence possessed by students can cause problems in the learning process in the classroom (Sumiarsih & Novita, 2021). Students who lack self-confidence and lose self-confidence have a negative view of themselves and perceive themselves as inadequate (Saputra, 2019). Apart from this, the role of parents at home is necessary to optimize children's self-confidence in the family environment. In addition, teachers play an important role in schools to instill confidence in students during the learning process by providing motivation, providing confidence in abilities, and guiding students to dare to appear in front of the class (Ati et al., 2022). This opinion is reinforced by Suryatin & Sugiman (2019) who state the need for reinforcement from parents and teachers to children so that self-confidence can develop properly.

Differences in the level of self-confidence of each student can affect their learning achievement, students with high levels of self-confidence can achieve good learning achievement because they believe in their abilities, and students who have low self-confidence get less satisfactory learning results because students do not believe in their abilities (Amri, 2018). Therefore, having self-confidence is so important for students to be more motivated in learning in class and their social life.

The results of observations conducted in June 2023 at SDN Masbagik Selatan found several problems experienced by students, namely: (1) learning is still teacher center causing students to be inactive and tend to be passive in class, (2) students are still shy and dare not ask questions during the learning process, (3) social studies learning is often considered a difficult and boring lesson because most of them memorize, (4) lack of student involvement in learning because the lecture method dominates learning in class, causing students to be relatively less active, (5) There are still some students who are quiet and do not manage communication with their classmates, (6) some conditions that become problems related to low social skills of elementary school students, related to social skills, Relationships between students' peers show that there are still students who cannot group when students are asked to form groups. Some students are shunned because they are less able to socialize well and are considered less intelligent. In addition, students cannot understand their classmates, cannot control anger, provide information, invite friends to engage in learning activities, and cannot be good listeners when friends talk, (7) Student confidence is low, evidenced by students' lack of confidence in the ability to complete tasks or to ask questions, cannot take responsibility for their mistakes, and has not been able to analyze events with use the mind. In addition, completing the task is still affected by the results of other people's work.

The observations mentioned are caused by, among others: (1) lack of use of technology and use of media in learning, (2) use of learning methods and models less skilled than teachers, (3) teachers are minimal in creating and encouraging interaction between students during the learning process. The above problems result in students in the classroom only understanding theory and have not reached the stage of social skills and student confidence in learning which results in students being bored and bored in learning. This condition is not good for students. Social skills and self-confidence are needed by students in learning social studies because social skills and self-confidence are the initial foundation for achieving the targets of social studies subjects.

So the problems mentioned above must be addressed immediately to achieve the target of social studies lessons, because social studies learning is one of the most important subjects in life at all times, and will affect the next school level, namely junior high and high school. In this case, teachers need to use methods that can combine learning materials related to activities and students' real lives in their daily lives, to build a passion for social studies learning and provide freedom for students to express understanding through experiences in life in their social environment. Learning methods can provide active

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student involvement in learning and discussion, can relate or connect social skills and confidence with students' real lives, and can provide new experiences for students.

The concrete operational phase is usually part of the characteristics of grade V elementary school students, aged between 10-12 years. At the age of eleven and twelve years, the students' memory becomes good, and can think logically, and can make plans. For example, research shows that ten- to twelve-year-olds who have become chess experts can remember more about the game than adults who have never played chess (Agung, 2019).

In realizing social skills and student confidence in social studies subjects, teachers need to apply interesting methods such as approaches, methods, models, and learning techniques needed for the implementation of learning activities to make it easier for students to gain knowledge. One of the learning methods that can be used to overcome the problem of low social skills and student confidence in social studies learning is the role-playing method. The role-playing method is a simulation of reality through which the "player" gives the "player" the opportunity to play a certain aspect or practice a certain behavior, without consequences in reality (Solihah, 2019).

The role-playing method emphasizes the reality when students are involved in role-playing in dramatizing social relationship problems (Nahar et al., 2020). Role-playing can help students get their identity, while in groups students will be able to solve problems so that with role-playing students will be aware that the roles of people around them are diverse (Sàdiyah, 2018). Role-playing games are played by more than one person, depending on the role they play, students are given role cards to learn and practice on a predetermined role-playing scenario script (Nuryati et al., 2021). Based on these problems, the purpose of this study is to analyze the Effect of Role Playing Methods on Social Skills and Student Confidence.

## II. MATERIAL AND METHODS

This study uses a quantitative approach method with a type of pseudo-experiment research, or quasi-experiment because it involves the group of subjects as a whole and does not control all factors outside the variables studied. There were two groups of students in the study, one group was given role-playing method treatment as an experimental group and one group used the method commonly used by teachers, namely the lecture method. The research design in this study is a non-equivalent (pretest and posttest) Control Group.

The population in this study was the entire grade V students of SDN Masbagik Selatan Lombok consisting of 6 schools. The number of class V students is 288 students. This study took samples from 2 elementary school institutions using 2 groups, namely 1 experimental group and 1 control group. The sample was selected using the cluster random sampling technique. Random is applied for the selection of classes that are sampled using pieces of paper that are folded and then shaken, and clusters are used for the selection of all students against classes that have been sampled. Based on these criteria, 52 samples were obtained from the experimental group, namely SDN 2 Masbagik Selatan class VC which amounted to 26, and the control class SDN 4 Masbagik Selatan class B as many as 26 students.

Data collection techniques in this study are tests and measurements. The instrument to measure social skills and confidence in this study was using questionnaires. Data analysis technique using SPSS version 25 with Manova Test performed at significance level = 0.05. Before arriving at the use of Manova it is necessary to try prerequisite tests which include: (1) normality tests and (2) variant homogeneity tests and hypothesis tests.

## III. RESULTS AND DISCUSSION

### Hasil

The chapters of research results and discussion will be presented sequentially, including (1) analysis prerequisite tests, and (2) hypothesis tests. The hypothesis test in this study will be presented sequentially, including: 1) the effect of role-playing on students' social skills; (b) the effect of role-playing on student confidence; and (c) the influence of role-playing methods on students' social skills and self-confidence. In full it will be presented as follows:

### 1. Prerequisite Test

#### a) Normality Test

The normality test is carried out to ascertain whether the sample taken from each dependent variable comes from a population with a normal distribution or not. Test prerequisites using the Kolmogrov-Smirnov test with the help of SPSS 25. Results were obtained, namely:

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**Table 1. Results of Pretest Data Normality Test Analysis**

Data	Significance Value		Nilai $\alpha$	Information
	Experiment Class	Control Class		
Social Skills	0,200	0,200	0,05	Usual
Confidence	0,121	0,200	0,05	Usual

Test results of Kolmogorov-Smirnov normality on data on social skills and self-confidence of students in the experimental group who learned using the role-playing method and the control group using the normal distributed lecture method. This can be seen in the significance value of the social skills pretest in the experimental and control groups of  $0.200 > 0.05$  and confidence in the experimental group of  $0.121 > 0.05$  and control of  $0.200 > 0.05$ , so it is said that the data is normally distributed.

**Table 2. Posttest Data Normality Test Analysis Results**

Data	Significance Value		Value $\alpha$	Information
	Experiment Class	Control Class		
Social Skills	0,200	0,200	0,05	Usual
Confidence	0,200	0,074	0,05	Usual

The results of the Kolmogorov-Smirnov normality test on post-test data on the social skills of students in the experimental and control class groups obtained significance values of  $0.200 > 0.05$ . Meanwhile, students' confidence in the experimental group was  $0.200 > 0.05$  and the control class was  $0.074 > 0.05$ .

Thus, the posttest data on social skills and self-confidence of the experimental class and the control class were normally distributed.

### b) Homogeneity Test

The homogeneity test of variance used in this study is Box's M test. The results of the homogeneity test of the sig value level of  $.502 > 0.05$ , as shown in table 14 below:

**Table 3. Test Box's M**

Test Results		
Box's M		8,633
F	Approx.	,925
	df1	9
	df2	114598,071
	Sig.	,502
Tests null hypothesis of equal population covariance matrices.		

### 2) Manova Hypothesis Test

The Manova hypothesis test is used to provide reinforcement for previous tests by comparing the gains from the experimental group with the control group. Below is presented a table containing the results of the analysis of the test variance test of between subjects effect.

**Table 4. Test Variant Test of Between Subjects Effect**

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	KD	11409,769 <sup>a</sup>	3	3803,256	72,893	,000
	KS	2002,038 <sup>b</sup>	3	667,346	42,425	,000
Intercept	KD	479808,615	1	479808,615	9195,937	,000
	KS	433956,962	1	433956,962	27587,855	,000

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CLASS	KD	11409,769	3	3803,256	72,893	,000
	KS	2002,038	3	667,346	42,425	,000
Error	KD	5217,615	100	52,176		
	KS	1573,000	100	15,730		
Total	KD	496436,000	104			
	KS	437532,000	104			
Corrected Total	KD	16627,385	103			
	KS	3575,038	103			

Based on the results of the significance values listed in the table above, it is seen that the significance values for social skill variables are  $.000 < 0.05$ . From the value data obtained, there is a significant influence on the application of Role Playing on students' social skills in social studies learning. In addition, the acquisition of the significance value of student confidence is  $.000$  which is  $< 0.05$ . Thus, there is an influence on the application of Role Playing on student confidence in social studies learning.

The next test is a test to determine the effect of the Role Playing method simultaneously on students' social skills and social studies confidence:

**Table 5. Multivariate Test**

Multivariate Tests						
Effect		Value	F	Hypothesis df	Error df	Sig.
Class	Pillai's Trace	,997	16097,785 <sup>b</sup>	2,000	99,000	,000
	Wilks' Lambda	,003	16097,785 <sup>b</sup>	2,000	99,000	,000
	Hotelling's Trace	325,208	16097,785 <sup>b</sup>	2,000	99,000	,000
	Roy's Largest Root	325,208	16097,785 <sup>b</sup>	2,000	99,000	,000

The table above shows that the overall significance values of Pillai's Trace, Wilks Lambda, Hotelling's Trace, and Roy's Largest Root are  $0.000 < 0.05$ . Based on decision-making criteria, there is a significant effect of the simultaneous use of role-playing on students' social skills and self-confidence.

## DISCUSSION

The research was carried out on theme 7 learning activities on "Events in Life" and only took social studies learning content. The research was conducted 5 times. The experimental class given learning treatment in this study was SDN 2 Masbagik Selatan through the role-playing method while the control class was SDN 4 Masbagik Selatan which was not given treatment. This research aims to determine the effect of using the role-playing method on social skills and student confidence in social studies learning. The results of this study can be used as a reference to apply role-playing methods to conduct subsequent research. To find out how the independent variable affects the dependent variable, the explanation is given as follows:

### The Effect of Role Playing Method on Social Skills in Class V Social Studies Lesson Content in Elementary School

The results of the first hypothesis test aim to determine the effect of role-playing methods on the social skills of grade V elementary school students. The first hypothesis test was carried out using the Manova test, by looking at the Corrected Model of the Manova Test of Between-Subjects Effects test table which explained that the significance value on the social skill variable obtained a value of  $0.000 < 0.05$ , it can be said that there are differences in role-playing methods on the social skills of grade V elementary school students.

The successful use of role-playing methods during the social studies learning process involves the active role of students in developing social skills at each meeting. In connection with that, in the theory expressed by Santoso (2016) While role-playing has a significant effect on social skills, learning through role-playing methods emphasizes sensory observation and emotional engagement with problems faced in real terms by students. Results of research conducted by Rosyadi (2022) Strengthen the above opinion that states that by using role-playing learning methods there are significant differences in students' social skills. Role-playing provides an opportunity to express oneself through role-playing.

Based on the findings Fahreza (2018) stated role-playing in social studies learning can improve students' social skills in elementary school. In addition, role-playing will dialogically reflect an important meaning in the development of social skills, in practice What attracts students' attention are the ways used in shaping reality, relationships, and the creation of new opportunities for students in the social world (Wijaya, 2020). Students can improve their social skills through role-playing experiences, which can allow students to play different roles (Ckurnia et al., 2018).

## **The Influence of Role-Playing Methods on the Social Skills and Self-Confidence of Grade V Elementary School Students**

Role-playing is a way to incorporate roles that exist in the real world into a performance in class, then this role is used as reflection material for students to provide assessment (Mukrimah, 2014). The goal is to improve social skills and the ability to work together (Rosyadi, 2022). Findings Aan Budi Santoso (2016) said that the role-playing method is a way of teaching by modeling how to behave in social relationships.

Findings et al., (2018) said the role-playing method had a significant positive effect on social skills between classes that used role-playing with class groups that did not use role-playing learning. The role-playing learning method helps students to improve and develop their social skills so that students are more motivated to follow social studies advocacy.

### **The Effect of the Role Playing Method on Self-Confidence in the Content of Class V Social Studies Lessons in Elementary School**

The results of the second hypothesis test aimed at determining the effect of role-playing methods on the self-confidence of grade V elementary school students. The second hypothesis test carried out by the Manova test looked at the Corrected Model of the Manova Test of Between-Subjects Effects test table which explained that the significance value on social skill variables obtained a value of  $0.000 < 0.05$ , so there were differences in the use of role-playing methods on the confidence of grade V elementary school students. The role-playing method will allow students to act as characters in learning materials, train students' psychological abilities to work together, express opinions, speak in front of the class, and increase student confidence (Purnamasari Ayu, 2022). In addition, the role-playing method can foster students' self-confidence, it will make students easily adapt to a fun learning environment focused on clear language and understood by teachers and peers (Ningrum & Abdullah, 2023).

Findings Nurhidayah et al., (2022) stated role playing methods enhance learning and increase students' confidence. The study found that students should be trained to be more confident so that students can become more confident in themselves and their social environment (Nurhidayah et al., 2022). One of the causes that affect student confidence is the creativity factor and students' skills in discussions that are increasing after learning with the role-playing method (Wijayanti, 2021).

Role-playing can teach students how to overcome shyness and interact with others (Haliza & Nugrahani, 2021). In line with the statement Handayani, Y. et al., (2014) state that role-playing has several advantages for students: it is fun for students, attracts students, encourages them to learn, and increases their self-confidence, giving them the freedom to voice opinions. This is supported by the results of research conducted by Yunifia & Wardhani (2023) Explain that the use of role-playing methods is successful in increasing students' confidence in learning.

Furthermore, the role-playing method can emphasize that students are involved in the social studies teaching and learning process and increase student confidence (Yenni, 2018). Plus, the use of role-playing methods can develop confidence, so that students become enthusiastic in following learning and even answering questions from teachers (Konadi & Rambe, 2022).

### **The Effect of Role-Playing Methods, Social Skills, and Student Confidence on Class V Social Studies Lesson Content in Elementary School**

The third hypothesis test aims to determine the effect of role-playing methods on the social skills and self-confidence of grade V elementary school students. The results of the Multivariate test analysis are seen from the significance values of Pillai's Trace, Wilks Lambda, Hotelling's Trace, and Roy's Largest Root Manova test table in the class section of  $0.000 < 0.05$ . That is, the role-playing method towards the social skills and self-confidence of grade V elementary school students. Success by using role-playing methods provides interesting activities for students to learn. In addition, students do active learning and can express themselves without having to fear being wrong, thus involving students in developing their imagination and helping students improve social skills and self-confidence.

The implementation of this research was in the experimental class using the role-playing method and the control class using the lecture method on the content of social studies lessons in grade V elementary school. The results of this study are in line with Maria (2018) which states the role-playing method has a positive effect on students' social skills. Research conducted by (Haliza & Nugrahani, 2021) Supports the findings of analysts who say that the group of students in the experimental class with the role-playing method and the group of students who use the lecture method have significant differences.

While the variable of self-confidence is very necessary for learning, it is inseparable from social studies learning, where students need confidence in the ongoing learning process. This encourages teachers to improve the quality and quantity of their education to improve the learning system to achieve the desired learning goals, especially social studies learning which requires students to dare to interact with their social environment and to hone student confidence. The self-confidence created by students will make students actively follow class lessons make the classroom a comfortable place for students to learn, and lead

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to improved student learning outcomes (Purnamasari Ayu, 2022). Through the role-playing method, students master the subject matter through the development of students imagination and passion by acting as living figures or non-living objects (Arsyad, 2021).

The use of role-playing methods can encourage student enthusiasm during the learning process and become more motivated. This can be seen from the research Yenni et al., (2018) that there is a significant influence of role-playing methods on students' confidence with good criteria. In addition, the findings Tusaroh & Juhji, (2020) In his research said that learning the role-playing method can increase students' confidence.

Based on the analysis of research results, previous research and theoretical studies explain that role-playing partially influences social skills. This is evidenced by students' social skills that were initially negative to more positive social skills. The role-playing method in this research influences students' self-confidence. This is seen in the increase in the confidence of students who carry out learning by role-playing. Thus, it can be concluded simultaneously that the use of role-playing methods has a significant influence on students' social skills and self-confidence.

### IV. CONCLUSION

Based on the findings of the data analysis, a conclusion was obtained, namely: a) The role-playing method affects the social skills of grade V elementary school students. b) The role-playing method affects the confidence of grade V elementary school students. c) Role-playing methods affect the social skills and self-confidence of grade V students.

### REFERENCES

- 1) Aan Budi Santoso, M. P. (2016). Pengaruh metode role playing pada mata pelajaran IPS terhadap keterampilan sosial siswa kelas V SD. *Jurnal Ilmiah Mitra Swara Ganesha, Vol. 3 No.*
- 2) Agung, R. (2019). Analisis teori perkembangan kognitif piaget pada tahap anak usia operasional konkret 7-12 tahun dalam pembelajaran Matematika. *Al-Adzka: Jurnal Ilmiah Pendidikan Guru Madrasah Ibtidaiyah, 9(1), 27–34.*
- 3) Alabsi, T. A. (2016). The effectiveness of role play strategy in teaching vocabulary. *Theory and Practice in Language Studies, 6(2), 227.* <https://doi.org/10.17507/tpls.0602.02>
- 4) Alpian, Y., & Mulyani, R. (2020). Hubungan keterampilan sosial dengan motivasi belajar siswa. *Jurnal Cakrawala Pendas, 6(1).* <https://doi.org/10.31949/jcp.v6i1.1832>
- 5) Amri, S. (2018). Pengaruh kepercayaan diri (self confidence ) berbasis ekstrakurikuler pramuka terhadap prestasi belajar matematika siswa Sma Negeri 6 Kota Bengkulu. *Jurnal Pendidikan Matematika Raflesia, 03(02), 156–168.*
- 6) Anggraini, F. L., Hanurawan, F., & Hadi, S. (2017). *Membangun keterampilan sosial karakter.* 975–982.
- 7) Arsyad, M. N. (2021). *Penerapan model pembelajaran role playing berbasis media film untuk meningkatkan motivasi dan hasil belajar siswa Indonesia kelas VII ips di smp katolik marsudisiwi.* 2(2).
- 8) Ati, B. S., Subekti, E. E., & Purnamasari, V. (2022). Analisis peran guru dan orang tua terhadap karakter kepercayaan diri siswa kelas IV SD negeri Harjosari 01 kecamatan Bawen kabupaten Semarang. *Jurnal Pendidikan Dan Konseling, 4(4), 2638–2645.*
- 9) Ckurnia, N., Haerudin, D. A., & Solihati, A. (2018). Meningkatkan keterampilan sosial anak usia dini melalui bermain peran. *Jurnal UPMK, 63–76.*
- 10) Daraee, M., Salehi, K., & Fakhr, M. (2016). *Comparison of social skills between students in ordinary and talented schools.* November 2016, 512–521. <https://doi.org/10.15405/epsbs.2016.11.52>
- 11) Dewi, A. E. A., & Mukminan, M. (2016). Implementasi pendekatan saintifik dalam pembelajaran IPS di middle grade SD Tumbuh 3 kota Yogyakarta. *Jurnal Prima Edukasia, 4(1), 20.* <https://doi.org/10.21831/jpe.v4i1.7691>
- 12) Fahreza, F. dan rabiatul rahmi. (2018). Peningkatan keterampilan sosial melalui metode role playing Pada pembelajaran Ips di kelas Iv Sd negeri Pasi Pinang kabupaten Aceh Barat. *Jurnal Bina Gogik, 5(1), 79–90.*
- 13) Haliza, R. N., & Nugrahani, R. F. (2021). Pengaruh metode role play terhadap kepercayaan diri siswa. *Psikodinamika: Jurnal Literasi Psikologi, 1(2), 133–142.*
- 14) Handayani, S., Poerwanti, J. I. S., & Wahyuningsih, S. (2020). Peningkatan keterampilan sosial pada pembelajaran IPS melalui model teams games tournament (tgt) peserta didik kelas IV Sekolah Dasar. *Didaktika Dwija Indria, 8(5), 1–6.*
- 15) Handayani, Y., Lusa, H., & Lukman, L. (2014). Penerapan metode role playing (bermain peran) dengan menggunakan media film dokumenter untuk meningkatkan aktivitas dan hasil belajar IPS kelas V SDN 68 Kota Bengkulu. *E-Jurnal Mitra Sains, 2(3), 56–67.*
- 16) Kartini, D., & Dewi, D. A. (2020). Implementasi pancasila dalam pendidikan Sekolah Dasar. *Journal of Education,*



## The Influence of Role-Playing Methods on the Social Skills and Self-Confidence of Grade V Elementary School Students

*Psychology and Counseling*, 3(1), 113–118.

- 17) Kodariyati, L., & Astuti, B. (2016). Pengaruh model Pbl terhadap kemampuan komunikasi dan pemecahan masalah matematika siswa kelas V Sd. *Jurnal Prima Edukasia*, 4(1), 93. <https://doi.org/10.21831/jpe.v4i1.7713>
- 18) Konadi, H., & Rambe, S. A. (2022). Mengembangkan kepercayaan diri melalui teknik role playing. *JUMPER: Journal of Educational Multidisciplinary Research*, 1(1), 34–40. <https://doi.org/10.56921/jumper.v1i1.35>
- 19) Maria, A. T. (2018). Pengaruh metode bermain peran terhadap kemampuan sosial anak kelompok B di PAUD gugus Anggrek kecamatan Kuta Utara. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 6(1), 64–73. <https://doi.org/10.23887/paud.v6i1.15090>
- 20) Mukrimah, S. S. (2014). *53 Metode belajar dan pembelajaran* (S. S. Mukrimah (ed.)). UPI.
- 21) Nahar, S., Nasution, W. N., & Sari, S. (2020). The effect of role-play learning strategy and self-concept on social skills of children age 5-6 years old in Aisyah Az-Zahra Medan. *Britain International of Linguistics Arts and Education (BloLAE) Journal*, 2(3), 810–816. <https://doi.org/10.33258/biolae.v2i3.334>
- 22) Ningrum, D. A. W., & Abdullah, K. (2023). Implementasi metode role playing untuk meningkatkan self confidence siswa kelas V SDN Pengasinan VIII Bekasi. *Research and Development Journal of Education*, 9(1), 50. <https://doi.org/10.30998/rdje.v9i1.13860>
- 23) Nurhidayah, B. S., Wibowo, M. E., & Purwanto, E. (2022). Keefektifan konseling kelompok cognitive behavioral therapy (cbt) dengan teknik modeling simbolis dan role playing untuk meningkatkan self-confidence pada Siswa. *Bulletin of Counseling and Psychotherapy*, 4(1), 64–69. <https://doi.org/10.51214/bocp.v4i1.156>
- 24) Nuryati, Muthmainnah, & Lubis, H. Z. (2021). Method in increasing achievement motivation of early children during learning. *As-Sibyan Jurnal Pendidikan Anak Usia Dini*, 6(2), 139–148.
- 25) Pristiwanti, D., Badariah, B., Hidayat, S., & Dewi, R. S. (2022). Pengertian pendidikan. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(6), 1707–1715.
- 26) Purnamasari Ayu, L. J. L. A. R. (2022). Efektivitas metode role playing terhadap peningkatan percaya diri siswa pada mata pelajaran IPS kelas IV. *Universitas Muslim Indonesia*, 1(January), 106–113.
- 27) Ramadhani, M. I., & Ayriza, Y. (2019). The effectiveness of quantum teaching learning model on improving the critical thinking skills and the social science concept understanding of the elementary school students. *Jurnal Prima Edukasia*, 7(1), 47–57. <https://doi.org/10.21831/jpe.v7i1.11291>
- 28) Rosyadi, R. A. (2022). Pengaruh metode bermain peran terhadap keterampilan sosial pada siswa kelas III SD. *Jurnal Ilmiah Mandala Education*, 8(1), 758–766. <https://doi.org/10.36312/jime.v8i1.2802>
- 29) Sadiyah, H. (2018). *Bermain peran (role playing)*. 3, 1–29.
- 30) Santoso, A. B. (2016). Pengaruh metode role playing pada mata pelajaran IPS terhadap keterampilan sosial siswa kelas V SD. *Jurnal Ilmiah Mitra Swara Ganesha*, 3(2).
- 31) Saputra, Y. B. (2019). Pengaruh tanggung jawab terhadap rasa percaya diri siswa kelas IV SD se gugus I kecamatan Panjatan kabupaten Kulon Progo. *Jurnal Pendidikan Guru Sekolah Dasar*, 8(5), 431–438.
- 32) Solihah, N. (2019). Pengaruh teknik role playing terhadap. *Skripsi*.
- 33) Sumiarsih, & Novita, L. (2021). Pengaruh konsep diri terhadap kepercayaan diri. *Jurnal Pendidikan Dan Pengajaran Guru Sekolah Dasar (JPPGuseda)*, 4(2), 92–96.
- 34) Suryatin, S., & Sugiman, S. (2019). Comic book for improving the elementary school students' mathematical problem solving skills and self-confidence. *Jurnal Prima Edukasia*, 7(1), 58–72. <https://doi.org/10.21831/jpe.v7i1.10747>
- 35) Time, F., Hm, Y., Cranfield University, Executive, H. & S., Thermo Fisher Scientific, Kingdom, U., Office, I., Street, W., Kingdom, U., Service, C. A., Lane, N. B., Authorities, L., Nurjanah, M. S., V.A.R.Barao, R.C.Coata, J.A.Shibli, M.Bertolini, J.G.S.Souza, Data, P., ... Elkhoully, D. M. A. (2022). Pengaruh pembelajaran kooperatif type make a match dan student team achievement division (stad) terhadap keaktifan dan pemahaman konsep IPS siswa kelas v sdn gugus VI kecamatan narmada. *Material Safety Data Sheet*, 33(1), 1–12.
- 36) Tusaroh, A., & Juhji, J. (2020). The effect of role-playing method on student's confidence in Indonesian language subjects. *Madrosatuna: Journal of Islamic Elementary School*, 4(1), 01–07. <https://doi.org/10.21070/madrosatuna.v4i1.370>
- 37) Wardani, N. A. (2016). Pengaruh metode role playing terhadap hasil belajar IPS peserta didik kelas V SD. *Aricef Penelitian*, 908–914.
- 38) Wijaya, A. K. (2020). Integrasi model pembelajaran role playing dengan multimedia dalam meningkatkan keterampilan partisipasi sosial siswa. *Edueksos : Jurnal Pendidikan Sosial & Ekonomi*, 9(1), 98–113.

## The Influence of Role-Playing Methods on the Social Skills and Self-Confidence of Grade V Elementary School Students

<https://doi.org/10.24235/edueksos.v9i1.6420>

- 39) Wijayanti, E. Y. (2021). Meningkatkan kepercayaan diri siswa melalui layanan penguasaan konten dengan metode role playing. *AL-TARBIYAH: Jurnal Pendidikan (The Educational Journal)*, 31(1), 40. <https://doi.org/10.24235/ath.v31i1.8494>
- 40) Yenni. (2018). Meningkatkan kepercayaan diri siswa melalui metode role playing pada pembelajaran IPS improving students self-confidence through role playing methods on social studies learning. *Jurnal Pendidikan Guru Sekolah Dasar*.
- 41) Yunifia, R. N., & Wardhani, J. D. (2023). Efektifitas bermain peran terhadap kepercayaan diri anak usia dini. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(2), 2163–2176. <https://doi.org/10.31004/obsesi.v7i2.4191>
- 42) Zaidi, M. W. (2017). *Hubungan kepercayaan diri dengan keterampilan sosial mahasiswa psikologi Universitas Islam Negeri Maulana Malik Ibrahim Malang Angkatan 2017*.



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## Software Development of Sports Talent Identification Using Sport Search Analysis Method



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**ABSTRACT:** This research aims to (1) produce a software for sports talent analysis aimed for 11-year-old kids, (2) determine the feasibility of the software of sports talent potential analysis, and (3) determine the effectiveness of the software of sports talent potential analysis in measuring and analyzing data collected from a talent test of an 11-year-old kid. The research method used is research and development referenced to the borg and gall's research steps which is simplified by Pustlitjaknov team. The research subjects were coaches, Physical Education teachers, and sports academics. The trials conducted included two stages, small group trials conducted on 50 respondents and large group trials with 100 respondents. The results of this research are (1) a biomotor data analysis software product to identify, distinguish the sports potential and talents of the children aged 11 years old, (2) The feasibility level of this product is identified through material validation assessments to obtain the average results of material aspect assessment from five experts with categories. In a small and large group trial, this product received an assessment result is Very Appropriate/Very Feasible category. Hence, it can be concluded that this product is feasible/suitable to use, and (3) based on the effectiveness test, it shows that this product is effectively used in identifying and distinguishing potential and talents in sports for 11-year-old kids. As suggestions, this book and visualization video can be developed further through comprehensive research.

**KEYWORDS:** talent identification, sport search, software

### I. INTRODUCTION

A peak achievement in the world of sports cannot be obtained instantly, but must go through a long and gradual path, even in developed countries. Mansur (2011: 2) says that lagging behind national sports achievements with other Asian countries is one of the big problems for the nation to improve its sports achievements. Until now, sports achievements have not been maximized, because each sport and the athletes themselves have not shown optimal results. This is because there are obstacles in finding and finding talented athletes. One of the efforts to get talented athletes is by way of talent scouting efforts from an early age. Kusnanik (2014: 147) also said that one of the reasons behind Indonesia's sporting achievements was due to the lack of attention to the search for talented athletes as an effort to regenerate athletes in the future.

Increasing sports achievement is a long process that involves all parties and scientific disciplines that are studied scientifically from the start until an athlete achieves an achievement. These stages start from nursery, the coaching process and the evaluation process up to the achievements of the athletes. And all of that is done by prioritizing knowledge in their fields and also the latest technology.

There are many ways to look for potential seeds for coaching achievement sports. Nurseries starting from an early age are expected to be the first step in the coaching process towards sporting achievements. The sports coaching process is a procedure that must be carried out to achieve an achievement. In these efforts and efforts, of course there are many things that must be considered, so that each stage in the coaching process goes well and correctly. There are various factors that influence the success of a sports coaching process. The results of sports coaching in the form of the best achievements are certainly not obtained easily. Every sports actor must be able to work together on an ongoing basis, so that problems that occur in the sports coaching process can be resolved wisely, starting from the management of sports management to the pattern of coaching athletes.

In Australia, in anticipation of the 2000 Sydney Olympics, a movement has been organized called The National Talent Identification and Development Program for the Sydney Olympic Games. This movement has two main programs, namely the Sport Search and Talent Search programs. This talent scouting program was developed by the Australian Sports Commission, carried out because Australia had previously experienced a decline in the acquisition of gold medals at several Olympics. Since

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then, Australia has continued to take sports coaching seriously. Efforts made in fostering these achievements through the science and technology approach include identifying talented athlete seeds (Australian Sport Commission, 2005). The program has shown a positive impact on various world championships. The Australian contingent won 16 gold medals at the 2000 Olympics. Then at the 2004 Olympics in Athens managed to get 17 gold medals. At the 2012 London Olympics, Australia won 32 gold medals. Of course, Australia's success is believed to be part of the success of sports coaching that has been carried out in Australia, one of which is by carrying out a talent identification and talent development program or what is called Talent Identification and Talent Development. The success obtained after carrying out the talent scouting program shows several achievements in both national and international championships. According to Rutten and Ziemains (2004), the percentage of success in achieving athlete achievements in countries that carry out talent scouting programs is as follows: China 50%, USA 72%, Russia 40%, and Australia 65.8%. This is a pretty significant number.

Early childhood talent identification programs are needed before carrying out a training process that is oriented towards achieving high achievements. The talent identification process is carried out to determine a child's potential in one of the sports, according to the talent they have. In particular nursery is one of the processes that must be implemented to achieve an achievement. If you look at the early childhood development process, of course you cannot escape the topic of talent search. Talent tracking is an initial stage that must be carried out as early as possible according to the characteristics of a particular sport. According to Beswick (2010: 8) specifically, in a coaching process, talent identification is an early stage that needs to be implemented from an early age (grass root).

Talent scouting is an effort made to estimate the chances of a talented athlete, in order to be successful in undergoing a training program so as to be able to achieve peak performance. The earlier the child shows the suitability of the exercise with the ability to learn, the higher the level of success in completing the exercise program being carried out. Because, children will have plenty of time to practice before reaching the age of peak performance and will have a positive influence on training. Talent needs to be identified from an early age so that it can be properly nurtured to develop quality players/athletes (Pruna & Tribaldos, 2018). Identifying individuals who are talented in sports and directing them to relevant sports is very important for success in sports achievement (Kaynar, 2019). Muhammad Afif (2017: 292) says that peak achievements in a sport will only be achieved by those who are talented and who from a young age have been able to meet the requirements demanded by a sport, and are able to take part in systematic training in the long term. Jacob et al. (2018) suggested that detecting and identifying athletes is very important for the athlete development process, such as the initial selection of athlete guidance and the subsequent stages of the athlete development program. Factors that affect a person's talent according to Mansur (2012) are anthropometric aspects, biomotor aspects, physiological aspects, and psychological aspects. We use many words to describe the physical abilities of an athlete: size, speed, quickness, strength, power, agility, flexibility, coordination, and endurance (Brown, 2001: 9). It can be interpreted that to get good athletes, it is necessary to prepare physical components including: anthropometry, speed, strength, power, flexibility, coordination, and endurance. In conclusion, talent is an ability in a person, which has the potential to achieve optimal performance when given the appropriate coaching process.

Based on the existing facts, good biomotor is needed for an athlete to achieve the highest achievement. Data on the physical condition in the form of an athlete's biomotor component is very important for compiling training periodization. Information about the condition or physical abilities possessed by athletes is very necessary when coaching and developing the athlete's overall physical condition will be carried out. According to Mansur, et al (2020: 2) said that the physical condition of an athlete in the world of achievement sports is very important and fundamental, because to get good performance athletes must have excellent physical condition. Physical condition is a fundamental foundation that must be fulfilled first of all stages of an athlete to achieve perfect quality training in achieving maximum performance when competing. The physical condition itself consists of the basic biomotor components consisting of strength, endurance, flexibility, and speed. Knowledge of how the athlete's condition is one of the main factors that must be considered in the training process in order to achieve high performance. The main goal is to increase the athlete's functional potential and develop biomotor abilities to the highest degree (Bompa & Haff, 2009). One way or effort to identify talent is by applying a scientific approach, namely by using the sport search method, where the talent identification model consists of 10 test items and aims to help children (aged between 11-15 years) to be able to make informed decisions. regarding sports, not only interesting but in accordance with the characteristics and potential of the child (Istifani et al, 2013: 35)

The talent identification method that is considered suitable for the conditions of children in Indonesia refers to sport search by carrying out the talent identification process through anthropometric and biomotor tests in children aged 10-15 years. In fact, the development of sport search in Indonesia has not been carried out thoroughly due to the limited availability of information regarding the methods used by institutions that handle the identification of sports talent from various countries that have different treatments and methods, and the lack of development of talent identification by utilizing technology through tools.

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soft makes prospective athletes only focus on hobbies and interests without considering the talents they have. The development of existing products regarding sport search in several fields only focuses on the development of sports in certain sports and at certain ages. In the process of identifying talent in Indonesia, there are several obstacles such as the vision and mission of sports clubs, the methods used are not on target and even missed, and the lack of information regarding methods for identifying sports talent according to the needs of sports.

Currently, technological developments are increasingly helping humans to achieve maximum results in all fields of sports. Wilson, (2010: 34) states that the development and use of technology in the field of sports is very important, it is intended to analyze the performance of athletes and make plans to improve the athlete's performance. However, the talent identification test that is carried out is still done manually in terms of its application, so that its use is still not optimal and requires a long process and time to find out the results. Based on this background, the author has an idea, namely to develop software for analyzing data and statistics for athletes' biomotor components. Due to the data on the athlete's biomotor components as a whole which can be the basis for coaches to identify talents, recommend sports according to their biomotor abilities and design training programs and improve the performance of each individual athlete so that they can achieve maximum performance.

## II. RESEARCH METHODS

This research is research and development which aims to produce a potential sports talent analysis software product for 11-year-old children, determine the feasibility of sports talent potential analysis software, and determine the effectiveness of sports talent potential analysis software in measuring and analyzing test results data. 11-year-old giftedness. The product of this research has been validated by material experts and media experts, namely lecturers at the Faculty of Sports Science, Yogyakarta State University. The targets/subjects in this development research were football coaching students at the Faculty of Sports Science. The subject of this research was the tryout which was carried out in two stages, namely the small group tryout which was done on 50 respondents and the big group tryout with 100 respondents. Data analysis technique is a step to find out the results of research conducted. Data analysis includes all activities classifying, analyzing, using and drawing conclusions from all the data collected in action. After the data is collected, the data will be processed. Data collection was carried out in the study using two techniques, namely preliminary study instruments and model development instruments and field trials.

## III. RESULTS

### Design Results

Flowchart is one of the important stages in the process of developing a product, it aims to make it easier for developers to make the initial design of the product to be produced so that it requires a relatively fast time in the manufacturing process, and can minimize errors in the process of making the media.

### Development Results

The next stage, once the Flowchart has been made, is to start the software-based TALENT ID product development process as a tool for making its product media.



Figure 1. Initial interface of TALENT ID

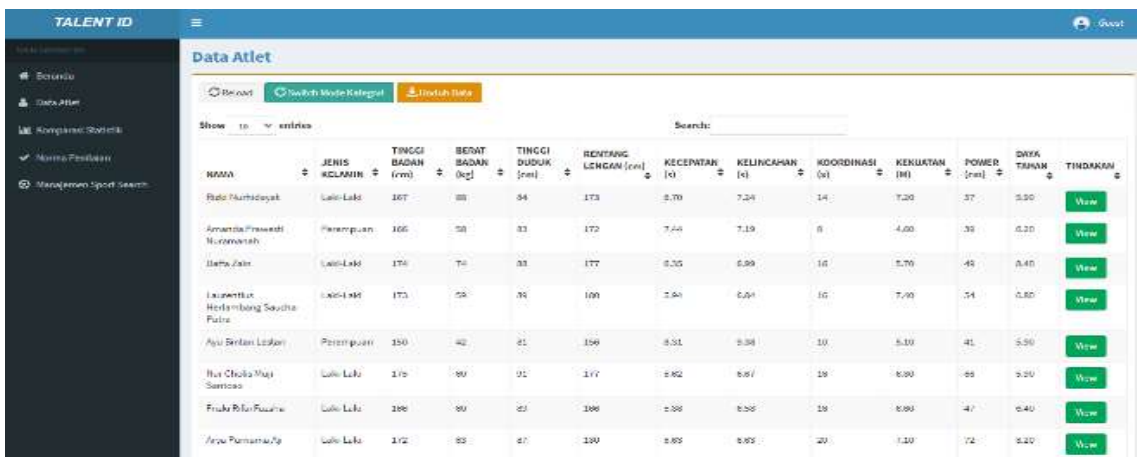


Figure 2. Athlete Data Display



Figure 3. Statistical Comparison Display

RESEARCH RESULTS

The first stage in research and development is the product manufacturing process. If the product that has been designed through the flowchart flow has been developed into a software-based product. The next step is to carry out the validation stage of the product that has been developed; the validation stage is carried out by experts / Expert Judgment. In this study, material experts are experts related to talent identification and scouting and media experts are experts related to information and digital media with product evaluations made based on software that has been developed.

Material expert validation is one of the procedures used in product research and development, by providing products that have been developed to experts in the field of talent identification and scouting, then material experts are given questionnaires that are available to provide assessments and suggestions for products that have been developed by researchers. The questionnaire was sent via email to five expert lecturers in the field of talent identification and scouting, namely Prof. Dr. Suharjana, M. Kes., Dr. Endang Rini Sukamti, M.S., Dr. Or. Mansur, M.S., Dr. Sigit Nugroho, M.Or., and Dr. Ahmad Nasrulloh, M.Or. There are 2 aspects assessed by material experts, namely Material Aspects and Media Aspects. The questionnaire given to the material experts was in the form of an assessment containing score data with a scale range of 1 – 4. On the assessment sheet there were also suggestions and criticisms which served to provide input to researchers to revise the products that had been developed, the following is a conversion table of Material Aspects and Media Aspects.

Table 1. Assessment Score Conversion

Guide	Score Intervals	Category
Aspect Material	$X \geq 39$	Very Eligible
	$39 > X \geq 32.5$	Eligible
	$32.5 > X \geq 26$	Not Eligible

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Aspect Media	$X < 26$	Very Inappropriate
	$X \geq 36$	Very Eligible
	$36 > X \geq 30$	Eligible
	$30 > X \geq 24$	Not Eligible
	$X < 24$	Very Inappropriate

**Table 2. Expert Judgment Results**

No	Rated Aspect		Category
	Material	Media	
1	52	48	Very Eligible
2	49	47	Very Eligible
3	50	48	Very Eligible
4	45	47	Very Eligible
5	48	45	Very Eligible
Average	48.8	47	Very Eligible

From the results of the assessment, the average results are taken and grouped based on the Conversion Score Assessment. The average result of the Material Aspect assessment from five experts was 48.8 in the Very Suitable / Very Eligible category, and the results of the Media Aspect assessment from five experts were 47 which were grouped into the Very Suitable / Very Eligible category.

The product trial phase was used on a small scale, the number of research subjects in the small-scale trial was 50 respondents consisting of coaches, sports teachers, and sports academics. The aspects assessed are the Appropriateness of Material and Media Feasibility Aspects. The following is a small-scale product trial score conversion.

**Table 3. Conversion of Research Assessment Score**

Guide	Score Intervals	Category
Aspect Material	$X \geq 45$	Very Eligible
	$45 > X \geq 37.5$	Eligible
	$37.5 > X \geq 30$	Not Eligible
	$X < 30$	Very Inappropriate
Aspect Media	$X \geq 30$	Very Eligible
	$30 > X \geq 25$	Eligible
	$25 > X \geq 20$	Not Eligible
	$X < 20$	Very Inappropriate

Small-scale trial analysis was carried out by providing an assessment sheet for software-based TALENT ID media products. that has been developed. Assessment of Material Appropriateness Aspects and Media Feasibility Aspects. The following are the results and analysis of small-scale trials.

**Table 4. Small-Scale Research Results**

No	Rated Aspect	Score	Category
1	Aspect Material	52,08	Very Eligible
2	Aspect Media	34,66	Very Eligible

Table 4 is a table of the results of the assessment of 50 respondents consisting of coaches, sports teachers, and sports academics on software-based TALENT ID Development Media. Based on the above table it can be concluded that the assessment of the Appropriateness Aspect of the Material with a score of 52.08. Meanwhile the Assessment of the Media Feasibility Aspect with a score of 34.66. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible.

The large-scale trial was carried out by giving an assessment sheet to 100 respondents consisting of coaches, sports teachers and sports academics. Analysis of large-scale trials is carried out by providing an assessment sheet for software-based TALENT ID media products. that has been developed. Assessment of Material Appropriateness Aspects and Media Feasibility Aspects. The following are the results and analysis of large-scale trials.

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Table 5. Large-Scale Research Results

No	Rated Aspect	Score	Category
1	Aspect Material	54,34	Very Eligible
2	Aspect Media	36,79	Very Eligible

Table 5 is a table of the results of the assessment of 100 respondents consisting of coaches, sports teachers, and sports academics on software-based TALENT ID Development Media. Based on the table above, it can be concluded that the assessment of the Appropriateness Aspect of the Material with a score of 54.34. While the Assessment of Media Feasibility Aspects with a score of 36.79. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible.

The effectiveness test was carried out with a descriptive test based on the results of the biomotor and anthropometric component tests conducted at several sports clubs in basketball, volleyball, badminton, football and martial arts. The effectiveness test is carried out to find out how effective the use of the software that has been made is by adding up the scores / points achieved by the child in 6 series of biomotor tests, then the difference in potential talent values will be known and the different recommendations for sports that are suitable for each child's biomotor component.

### IV. DISCUSSION

The development of talent identification software is designed and produced as an analytical medium that makes it easier for coaches, sports teachers, as well as regional level athlete development centers to centers for the identification and scouting process of early childhood talent in line with current developments in the world of sports. This product was developed by referring to experts in the field of talent identification and scouting through literature studies as well as experts in the field of information media as the media used.

After the product has been made, the product is validated by material experts and media experts. Material validation with five experts obtained an average result of the Material Aspect assessment of five experts of 48.8 in the Very Suitable / Very Eligible category, as well as the results of the Media Aspect assessment of five experts of 47 which were grouped into the Very Suitable / Very Eligible category. Media validation with experts scores 42 categories Very Suitable / Very Eligible. There were several inputs and suggestions obtained in this process such as adding material on potential talent criteria and comparisons of sports, as well as adding and replacing the features presented in product development media.

The next stage is the trial phase which is carried out twice, namely the small group trial stage and the large group trial stage. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible. From the two stages of group trials, this media product received several inputs, namely making the media look more attractive, providing pictures in several parts to clarify the material, and ranking values in children's data.

The results of product trials found that this software is a tool that can help, not necessarily identify talent. In this case the TALENT ID product can provide information about the potential value of giftedness, biomotor and anthropometric abilities, and can provide recommendations for sports that can be used as a reference for choosing sports according to the abilities possessed by children. In addition, the data stored in this software can be used as a reference for trainers to design training programs according to the abilities of the children being trained in more detail.

It can be concluded that the TALENT ID talent potential analysis media is feasible and can help coaches, sports teachers, and athlete coaches to identify children's talents as early as possible, and carry out talent scouting to the next stage based on the data stored in this media. However, this TALENT ID talent potential analysis media certainly has weaknesses and limitations that deserve special attention, especially for users. The age range in this media is specifically for boys and girls 11 years old, and only five sports are recommended, namely basketball, volleyball, badminton, football and martial arts.

Regardless of its advantages and disadvantages, it is hoped that the TALENT ID media can assist coaches, sports teachers, and athlete coaches in the process of identifying and scouting early talent. With this media product, it is expected to realize the importance of the talent identification process and to build the competence of coaches or coaches of athletes so that they can select and guide the talents of athletes appropriately.



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### V. CONCLUSIONS

The product resulting from this research is a software analysis of the potential for sports talent based on the results of biomotor and anthropometric tests for children aged 11 years called TALENT ID which has been developed according to the current needs of the sports world. Based on the validation process and group trials conducted by material experts who have assessed TALENT's sports talent potential analysis software product, it is included in the "Highly Appropriate / Very Eligible" category. The analysis software for sports talent potential using the Sport Search method has the ability to identify, differentiate sports potential and talent for 11-year-old children, so that it is effectively used by coaches in the process of identifying sports talent.

Based on the conclusions and implications above, the researchers suggest that the TALENT ID sports talent potential analysis software can be used as a media guide for coaches, sports teachers, and athlete development centers in carrying out talent identification tests. In addition, this software can be used as a medium for analyzing the results of anthropometric and biomotor tests for children aged 11 years so that they can be developed for the long term. This research can be further developed by further researchers to make it more interesting. More comprehensive research is needed with more diverse sports and other age group categories.

### ACKNOWLEDGMENT

The authors would like to thank Yogyakarta State University, the trainers, athletes and all those who have assisted in this research. With their help, this research can be completed optimally.

### REFERENCES

- 1) Ding, W. and Marchionini, G. 1997 A Study on Video Browsing Strategies. Technical Report. University of Maryland at College Park.
- 2) Abbott, A., & Collins, D. (2004). Eliminating the dichotomy between theory and practice in talent identification and development: considering the role of psychology. *Journal of Sport Sciences*, 22(5), 395-408.
- 3) Asaribab, N., & Siswantoyo, S. (2015). Identifikasi bakat olahraga panahan pada siswa sekolah dasar di kabupaten Manokwari. *Jurnal Keolahragaan*. 3(1), 39-55.
- 4) Australian Sports Commission. (2005). *Sports Search*, National Sports Information, Canberra, Australia.
- 5) Baker, J., Schorer, J., & Wattie, N. (2018). Compromising talent: Issues in identifying and Selecting Talent in Sport. *Quest*, 70(1), 48-63.
- 6) Bergkamp, T. L., Niessen, A. S., Hartigh, R. J., Frencken, W. G., & Meijer, R. R. (2019). Methodological issues in soccer talent identification research. *Sports Medicine*, 49 (9), 1317-1335.
- 7) Bompa, T. O., & Buzzichelli, C. (2018). *Periodization-: theory and methodology of training*. Human Kinetics
- 8) Brown, J. (2001). *Sports talent, how to identify and methodology of training: Fourth Edition*. United States. Human Kinetics.
- 9) Fitri, M. (2010). Sistem informasi pengolahan data hasil tes pemanduan bakat cabang olahraga senam. *Manajerial*, 8(16), 16-27. Retrieved from <https://ejournal.upi.edu/index.php/manajerial/article/view/1197/pdf>
- 10) Hamlets, T. (2007). *Sports Search Health and Physical Activity Report*. The London Borough of Tower Hamlets.
- 11) Huijgen, B., Elferink Gemser, M.T., Ali, A., and Visscher, C. (2013). Soccer skill development in talented players. *International Journal of Sports Medicine*, 34(8) 720-726. <http://doi.org/10.1055/s-0032-1323781>
- 12) Isfiani T, Soetardji, Dwikusworo EP. (2013). Potensi Bakat Olahraga Siswa Sekolah Dasar Negeri 01 Kerangdowo Kecamatan Weleri Kabupaten Kendal, *Journal of Sport Science and Fitness* 2(2): p.35-38
- 13) Islahuzzaman, N. (2010). Identifikasi Bakat Usia Dini Siswa SD-SMP Surakarta, *Paedagogia. Jurnal FKIP UNS*, 13(1), 61-69. Retrieved from <https://adoc.tips/identifikasi-bakat-usia-dini-siswa-sd-smp-surakarta.html>
- 14) Jacob, Y., Spiteri, T., Hart, N. H., & Anderton, R. S. (2018). The Potential Role of Genetic Markers in Talent Identification and Athlete Assessment in Elite Sport. *Sports*, 6(88), 2-17.
- 15) Jamalong, A. (2014). Peningkatan Prestasi Olahraga Nasional Secara Dini Melalui Pusat Pembinaan dan Latihan Pelajar (PPLP) dan Pusat Pembinaan dan Latihan Mahasiswa (PPLM), IKIP PGRI Pontianak. *Jurnal Pendidikan Olahraga* 3(2):156-168. Retrieved from <http://journal.ikipgriptk.ac.id/index.php/olahraga/article/download/127/125>
- 16) Kumat, V.B., Prakash, G.A.P., Rao, J.P. (2014). Talent Scouting and training – role of government and private sector in india. *International Journal of Law, Education, Social, and Sport Studies*. 2(3):54-56. Retrieved from <http://ijless.kypublications.com/Vol.2.S3/54-56.pdf>

## Software Development of Sports Talent Identification Using Sport Search Analysis Method

- 17) Kusnanik, N. W. (2014). Model pengukuran antropometri, fisiologis, dan biomotorik dalam mengidentifikasi bibit atlet berbakat cabang olahraga sepakbola. *Pertemuan Ilmiah Ilmu Keolahragaan Nasiona*, 2, 146-157. Fakultas Ilmu Keolahragaan Universitas Negeri Surabaya, Surabaya.
- 18) Larkin, P., & O'Connor, D. (2017). Talent identification and recruitment in youth soccer: Recruiter's perceptions of the key attributes for player recruitment. *PLOS one*, 12(4), e0175716.
- 19) Li, C., Wang, C.K.J., Pyun, D.Y. (2014). Talent development environmental in sport: review and taxonomic classification. *Nanyang technological university*. 66 (4):433-447. Retrieved from <https://www.researchgate.net/publication/267338214>. DOI: 10.1080/00336297.2014.944715
- 20) Malik, A., Sunardi, S., & Ardianto, D. T. (2020). Pengembangan Panduan Identifikasi Bakat Olahraga Berbasis Teknologi Sport Search. *Journal of Curriculum Indonesia*, 3(2), 54. <https://doi.org/10.46680/jci.v3i2.30>
- 21) Mann, D.L., Dehgansai, N., Baker, J. (2017). Searching for the elusive gift: advances in Talent Identification in sport. *Journal medicine* 16(128-133). Retrieved from <https://www.researchgate.net/publication/316502853>  
Searching\_for\_the\_Elusive\_Gift\_Advances\_in\_Talent\_Identification\_in\_Sport. DOI: 10.1016/j.copsyc.2017.04.01616:128-133
- 22) Mansur. (2011). Pemanduan bakat olahraga. Jurusan Kepelatihan Olahraga FIK UNY.
- 23) Mylsidayu, A. (2014). Konstruksi tes keterampilan bola basket untuk siswa sekolah dasar. *Jurnal Olahraga Pendidikan* 1(1): 32-46. Retrieved from [http://kemenpora.go.id/ebook/Jurnal\\_Odlk\\_Kemenpora\\_vol\\_1\\_Mei\\_2014.pdf](http://kemenpora.go.id/ebook/Jurnal_Odlk_Kemenpora_vol_1_Mei_2014.pdf)
- 24) Ratno, P., & Nidyatama, N. (2019). Analisis Hasil Talent Scouting Dispora Kota Medan Cabang Olahraga Karate Pada Calon Atlet PPLP Kota Medan. *Sains Olahraga: Jurnal Ilmiah Ilmu Keolahragaan*. <https://doi.org/10.24114/so.v3i1.13060>.
- 25) Santoso, N.P.B., Hidayatulloh, M.F. (2016) Development a talent scouting instrument for fencing. *The journal of education development* 4(2): 106- 116. <http://journal.unnes.ac.id/sju/index.php/jed>
- 26) Weber, J.H. (2015). Talent development in sport and beyond. University of groningen 1-45 Retrieved from <https://www.researchgate.net/publication/327656092>. DOI: 10.13140/RG.2.2.35783.55208



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## Analysis of Old Proof of Rights Holders According to Government Regulation Number 18 of 2021



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**ABSTRACT:** In the ownership of land rights for holders of old title evidence, it is regulated in Government Regulation Number 18 of 2021 concerning Management Rights, Land Rights, Flats Units and Land Registration. PP No. 18 of 2021 explains that holders of proof of old rights are required to register evidence to obtain a certificate within a maximum period of 5 (five) years from the enactment of the PP. Seeing the existence of this PP, the government indirectly forced the public to register land in order to avoid overlapping evidence in land issues. Normative legal research uses a conceptual approach through analysis of regulations and theories that aim to explain the legal consequences for holders of evidence of old rights who do not register their evidence within the specified timeframe. The result is that the holder of evidence of old rights is in the form of evidence of former western rights which have been declared invalid and have become state-owned land since the enactment of PP No. 18 of 2021, registration can be done through a statement of physical possession. Meanwhile, evidence of former customary property owned by individuals is required to be registered within a maximum period of 5 (five) years. If registration is not carried out, then the former customary land can be concluded as state property and the evidence owned is invalid and only serves as a guide in the framework of land registration. However, the results have not yet explained in detail whether the holder of the old title still has the right to register the land after not registering it after a specified period of time.

**KEYWORDS:** Proof of Old Rights, Land Rights, Land Registration

### I. INTRODUCTION

In the ownership of land rights for holders of old title evidence, it is regulated in Government Regulation Number 18 of 2021 concerning Management Rights, Land Rights, Flats Units and Land Registration. PP No. 18 of 2021 explains that holders of proof of old rights are required to register evidence to obtain a certificate within a maximum period of 5 (five) years from the enactment of the PP. Seeing the existence of this PP, the government indirectly forced the public to register land in order to avoid overlapping evidence in land issues. Normative legal research uses a conceptual approach through analysis of regulations and theories that aim to explain the legal consequences for holders of evidence of old rights who do not register their evidence within the specified timeframe. The result is that the holder of evidence of old rights is in the form of evidence of former western rights which have been declared invalid and have become state-owned land since the enactment of PP No. 18 of 2021, registration can be done through a statement of physical possession. Meanwhile, evidence of former customary property owned by individuals is required to be registered within a maximum period of 5 (five) years. If registration is not carried out, then the former customary land can be concluded as state property and the evidence owned is invalid and only serves as a guide in the framework of land registration. However, the results have not yet explained in detail whether the holder of the old title still has the right to register the land after not registering it after a specified period of time.

### II. DISCUSION

The current national land law in Indonesia is the result of the adoption of the Dutch colonial period which came to colonize Indonesia bringing unwritten law and written law. One of the written laws in the agrarian sector as an example of the Dutch land sub-field imposes individual rights to land, namely Eigendom rights, Opstal rights, Gebruik rights which are then spread in the country of its jurisdiction, namely Indonesia, while before the Dutch colonization, Indonesia already had its own law, namely Customary Law and customary property rights, namely group rights, kebulan and others. So that after the Dutch imposed the law he brought in Indonesia there was dualism in law and also dualism in the institution of individual rights, especially land rights.

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After the independence of Indonesia, the government renewed the national law, especially in the field of land in a complex manner on September 24, 1960, namely the Basic Agrarian Law. So with consideration of the dualism of land law in Indonesia, the validity of the old regulation was ended with the birth of the UUPA and revoked the law. (Bachtiar, 1983): 1) Agrarische wet (S.1870-55) as contained in article 51 of the "wet op de staatsinrichting van netherlands indie" (S.1925-447) and the provisions of the other paragraphs of that article; 2) Domeinverklaring in article 1 of the "Agrarisch Besluit" (S. 1870-118), Algemene Domeinverklaring (S. 1874-1191a), Domeinverklaring for Sumatra in article 1 (S. 1877-94f), Domeinverklaring for the menado regency in article 1 (1877-55), Domeinverklaring for the zuider en Ooterafdeling van borneo in article 1 (S.1888-58). 3) Koninklijk Besluit April 16, 1872 No. 29 (S. 1872-117) and its implementing regulations. 4) Book II of the Indonesian Civil Code insofar as it relates to the earth, water and natural resources contained therein, except for the provisions concerning mortgages which are still in force. The merger and abolition of rights before the enactment of the UUPA is a simplification of existing land law in Indonesia as mentioned in the foundations of the formation of the UUPA.

(Ari Sukanti Hatagalung, 2012). Land rights with converted lands to be registered for the first time according to the UUPA aims to ensure legal certainty carried out by the Indonesian government. However, previously, land in Indonesia was registered only as a taxation system for the benefit of the government itself and not for the benefit of landholders. Thus, land registration has different types of registration, namely Legal Cadaster for legal certainty and certainty of rights, the purpose of which is contained in Article 19 paragraph (1) of the UUPA. (Indonesia, Undang-Undang Nomor 5 Tahun 1960 tentang Peraturan Pokok Dasar dan Pokok-Pokok Agraria). The implementation is carried out carefully and meticulously with the result in the form of a land certificate as proof of legal rights. While Fisical Cadaster registration aims to facilitate the tax collection of people who own land directly, but its implementation is less thorough when compared to Legal Cadaster if there are differences in the measurement of land area, the government is not concerned. Because the responsibility in this case is the Ministry of Finance, Director General of Taxes, Director of PBB, so the result of registration is not a proof of rights, but a proof of tax payment. One proof of tax payment in the Dutch colonization at that time was the Indonesian Verponding. The implementation of the conversion of land rights includes: Eigendom Rights After the enactment of the UUPA, eigendom rights are converted into:

- a. Eigendom rights where the subject of the eigendom land rights holder complies with Article 21 of the UUPA, the eigendom rights become property rights.
- b. An eigendom right belonging to a foreign government, which is used for the purposes of a residence for representatives and embassy buildings, becomes a right of use after the UUPA comes into effect.
- c. An eigendom right belonging to a foreigner, a citizen who in addition to his Indonesian citizenship has foreign citizenship and a legal entity, which is not designated by the government as referred to in Article 21 of the UUPA, becomes.
  - a) hak guna-bangunan (right of use)
  - d) An opstal right becomes.
    - b) hak guna-bangunan with a remaining term of 20 years at the most.
    - c) Hak erfpacht for large plantations becomes a hak guna usaha with a maximum period of 20 years and for housing in cities/rest areas becomes a hak guna bangunan with a maximum period of 20 years.
    - d) Hak gebruik becomes hak pakai with a maximum period of 20 years.
  - e) The right to lease land on state land becomes a hak pakai with a maximum term of 20 years. Customary property rights are converted into property rights Customary property rights are converted into property rights if the owner of the land rights meets the requirements as a subject of property rights, namely a single nationality. However, for owners whose conditions are not met, customary property rights are converted according to the designation of the land, namely:
    - a. Agricultural land is converted into Cultivation Rights Title with a period of 20 years.
    - b. Non-agricultural land is converted to Building Rights Title with a period of 20 years.

If within the specified period, the right is removed and becomes state land. The conversion of former customary property rights must also be followed by registration since government regulation number 10 of 1961 came into effect and was later changed to government regulation number 24 of 1997 concerning land registration. Based on this explanation, the registration of former customary land rights can be converted into property rights in accordance with the land rights contained in the UUPA. As long as the right holder has fulfilled the requirements as a holder of property rights, the former customary land after being registered will be converted into property rights. Based on Article 1 point 9 of Government Regulation Number 24 of 1997, the first time land registration is an activity carried out on land that has not been registered according to Government Regulation Number 10 of 1961 and Government Regulation Number 24 of 1997 in the article it has been explained that the object of the first time land registration is land that has not been registered, so for former customary land that has not been registered and has not been converted to ensure legal certainty in accordance with the message of Article 19 of the UUPA, the first time land registration can be carried out.

The first time land registration originating from the conversion of old rights is proven by written evidence in the form of proof of rights to obtain the truth of juridical data in land registration. The proof has been regulated in Government Regulation

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Number 24 of 1997, which consists of proving new land rights and old land rights regulated in Article 24 of Government Regulation Number 24 of 1997 concerning land registration. The first time registration based on PP number 24 of 1997 which still uses a manual system, but since the enactment of PP number 18 of 2021 which has used an electronic system, it is stated in its explanation in article 84 paragraph 2 of PP number 18 of 2021 that the first time land registration activities include collecting and managing physical proof of rights, and bookkeeping, issuing certificates, presenting physical data and juridical data and keeping public registers and documents in the form of electronic information data based on the first time land is not specifically discussed in PP number 18 of 2001. So that some of the provisions of the first time land registration are still based on PP number 24 of 1997 from the results of the analysis of PP number 18 of 2021 related to the provisions of land registration being changed with an electronic system that is carried out in stages and the provisions of evidence derived from old rights, namely evidence of former heavy rights is no longer recognized as evidence while evidence of former customs is given a period of 5 years to be registered.

The first time land registration of former customary rights can be done with evidence in the form of:

- a. Petuk pajak bumi, kitir, pipil, verponding indonesia and other evidence of former customary property rights before 5 years of PP Number 18 of 2021 applies the tool can still be used as evidence in land registration.
- b. The deed of transfer of rights made under the hand affixed with a witness mark by the adat/head of the village/kelurahan made before the enactment of this government regulation with the basis of the transferred matter or before 5 years of registration of former customary rights can be done with the above evidence to assess the existence of rights.

However, after 5 years the evidence is only as an indication, this provision causes the presence or absence of written evidence of customary rights files owned by the community in registering their land to be carried out by recognizing rights, this has been further explained in Permen ATR / BPN number 16 of 2021 in article 76A (2) letters a and b which states that written evidence of former customary land can be used again as a means of proving land rights, only as an indication in the context of the registration as referred to is carried out with a rights recognition mechanism, application for land registration through a rights recognition system. In the mechanism of recognition of rights, a statement of physical control must be included in accordance with the provisions of Perma ATR / BPN number 16 of 2021 because the evidence owned is only used as an indication of the existence of rights to be registered. According to Boedi Harsono regarding ownership of land rights there are three possible means of proof.

(Boedi, Hukum Agraria Indonesia Sejarah Pembentukan Undang-Undang Pokok Agraria Isi Dan Penjelasannya Jilid I Hukum Tanah Indonesia, 2008) namely:

- 1) Complete written evidence does not require additional evidence
- 2) Written evidence as referred to no longer exists, strengthened by witness testimony and / or statements concerned.
- 3) All written evidence no longer exists, replaced by witness testimony or statements concerned. The enactment of PP number 18 of 2021 in land law is a government effort in order to accelerate the land registration program.

Land registration based on article 1 point (9) of PP Number 18 of 2021 is a series of activities carried out by the government continuously, continuously and regularly including collecting, processing, bookkeeping, and presenting and maintaining physical data and juridical data in the form of maps and lists, regarding land parcels, land space, underground space and housing units. Based on the analysis of PP Number 18 of 2021 to obtain certainty for the community of rights holders of former customary land rights is to register the former customary land rights that are controlled so that they get a recognized proof of rights. The rules must be registered for former rights as described in Government Regulation Number 18 of 2021 which aims to provide legal certainty by registering the former customary land. This is also explained in Article 96 of PP number 18 of 2021 that the evidence of the former customary land object has not been issued a certificate. An old title deed such as a land tax receipt is not evidence of ownership of the person whose name appears on the tax receipt; it is merely a sign of who must pay taxes on the land to the government. Rather, it is merely the basis for the issuance of a land certificate.

The old certificate of title is only one of the written proofs of ownership of land that can be used as valid evidence. Evidence of ownership basically consists of evidence of ownership in the name of the right holder at the time of the enactment of the UUPA and, if the right is subsequently transferred or transferred, evidence of the transfer of rights successively to the hands of the right holder at the time of the bookkeeping of rights. The written evidence referred to in the explanation of Government Regulation No. 24/1997. The written evidence referred to can be in the form of (Indonesia, Peraturan Pemerintah Tentang Pendaftaran Tanah, PP Nomor 24 Tahun 1997, LN Nomor 59 Tahun 1997):

- 1) "Grosse deeds of eigendom rights issued under the Overschrijvings Ordonnantie (S.1834-27), on which a note has been affixed that the eigendom rights concerned have been converted into property rights;
- 2) Grosse deeds of eigendom rights issued under the Overschrijvings Ordonnantie (S.1834-27) since the enactment of the UUPA until the date on which land registration is carried out in accordance with Government Regulation Number 10 of 1961 in the area concerned;
- 3) Surat tanda bukti hak milik issued under the relevant Swapraja Regulation;

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- 4) TA certificate of ownership right issued under Agrarian Ministerial Regulation No. 9/1959;
- 5) A decree granting a hak milik from an authorized official, either before or since the enactment of the UUPA, which is not accompanied by an obligation to register the right granted, but has fulfilled all the obligations mentioned therein;
- 6) Deed of transfer of right made under the hand with a witness mark by the Head of Adat/ Head of Village/Kelurahan made before the enactment of this Government Regulation;
- 7) Deed of transfer of land rights made by PPAT, where the land has not been recorded;
- 8) Deed of pledge of waqf or letter of pledge of waqf made before or since the implementation of Government Regulation No. 28 of 1977;
- 9) Minutes of auction made by an authorized Auction Officer, where the land has not been recorded;
- 10) Letter of appointment or purchase of land plots to replace land taken by the Government or Local Government;
- 11) Petuk Pajak Bumi or Landrente, girik, pipil, kekitir and Verponding Indonesia before the enactment of Government Regulation Number 10 of 1961;
- 12) Land history certificate that has been made by the Land and Building Tax Service Office;
- 13) Other forms of written evidence by whatever name referred to in Articles II, VI and VII of the Conversion Provisions of the UUPA. Today, the old title deeds are not evidence of rights but merely serve as the basis for the contents of the warkah for the purpose of issuing certificates.

The Indonesian verponding issued during the Dutch colonial period was not a title deed but a tax certificate issued by the competent authority. At that time the Indonesian verponding was regarded as a certificate of title that could be used to show a person's right to the land he controlled. However, the evidentiary power of the Indonesian verponding as a tax certificate at that time was not as strong as that of the grosse deed of eigendom. Likewise, land with western rights at that time such as former eigendom land was registered, so that land rights and the subject of land rights holders could be clearly known because land registration for western rights is land registration that leads to proof of rights. In practice, many people have an understanding that the old proof of rights is a proof of land rights. So that people today still use old proof of rights to carry out a legal action carried out before PPAT. Legal actions are considered valid as long as the requirements of light and cash are achieved. Before the expiration of the period determined by PP No. 18 of 2021, the community of land rights holders of former customary rights can register their land through systematic land registration for areas where a systematic land registration program is implemented by the government, namely through the Complete Systematic Land Registration Program or commonly called PTSL. Based on Article 13 paragraph (3) of Government Regulation Number 24 of 2021, in the event that a village/kelurahan has not been designated as a systematic land registration area, land registration is carried out through sporadic land registration. Furthermore, it is stated in paragraph (4) that sporadic registration is carried out at the request of interested parties.

### **IV. ANALYSIS**

The Indonesian verponding issued during the Dutch colonial period was not a title deed but a tax certificate issued by the competent authority. At that time the Indonesian verponding was regarded as a certificate of title that could be used to show a person's right to the land he controlled. However, the evidentiary power of the Indonesian verponding as a tax certificate at that time was not as strong as that of the grosse deed of eigendom. Likewise, land with western rights at that time such as former eigendom land was registered, so that land rights and the subject of land rights holders could be clearly known because land registration for western rights is land registration that leads to proof of rights. In practice, many people have an understanding that the old proof of rights is a proof of land rights. So that people today still use old proof of rights to carry out a legal action carried out before PPAT. Legal actions are considered valid as long as the requirements of light and cash are achieved. Before the expiration of the period determined by PP No. 18 of 2021, the community of land rights holders of former customary rights can register their land through systematic land registration for areas where a systematic land registration program is implemented by the government, namely through the Complete Systematic Land Registration Program or commonly called PTSL. Based on Article 13 paragraph (3) of Government Regulation Number 24 of 2021, in the event that a village/kelurahan has not been designated as a systematic land registration area, land registration is carried out through sporadic land registration. Furthermore, it is stated in paragraph (4) that sporadic registration is carried out at the request of interested parties.

### **V. CONCLUSION**

According to the National Land Law and its provisions, lands with customary rights have undergone conversion, so that the old title deeds no longer exist. Referring to jurisprudence related to the Fiscal Cadaster, an old title deed is not a proof of ownership of the person whose name appears on the tax certificate, but only a proof of who must pay tax. The position of the old proof of right as a proof of old rights cannot be equated with a legal certificate as a proof of rights whose land has been registered. In

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practice, the use of old evidence of rights is still used as evidence to carry out legal acts of transfer of rights, because previously the land has not been registered for the first time, so that the proof of ownership owned is only evidence of old colonial rights before the enactment of the UUPA. In land registration as evidence in the legal act of transferring rights with the old right base is accompanied by other supporting evidence in the form of a certificate, no dispute, and a certificate from the village. As long as the land has not been registered for the first time for the legal certainty of the right holder itself, the land has not been registered. So that the strength of proof against third parties is weak and the evidence of old rights is only limited to indications of land tenure. The guarantee of legal certainty of customary land rights after the enactment of Government Regulation Number 18 of 2021 concerning management rights, land rights, apartment units, and land registration is by first registering the land at the local land office. Land registration is carried out so that former customary land ownership is converted into property rights and land certificates can be issued as evidence of ownership of strong land rights based on article 19 of the UUPA. The issuance of certificates can provide a sense of security against ownership of land rights controlled. Before the end of the validity period of evidence of former customary rights, the community can register their land through land registration for the first time, namely by systematic registration for areas that are the object of systematic land registration and for areas that have not become the object of systematic registration and for areas that have not become the object of systematic registration, sporadic land registration can be carried out. After 5 years of the enactment of PP Number 18 of 2021, written evidence of old rights cannot be used as evidence but only as instructions in the context of land registration.

As a new regulation for the community, PP 18 of 2021 concerning management rights, land rights, apartment units, and land registration, it is necessary to socialize the government and the Land Office to the community, especially to areas whose land plots have not been registered to register their land before the specified period ends. The existence of overlapping rules related to land registration associated with Indonesia's current land conditions still does not solve the existing land registration problems, the existence of these rules is expected not to burden the community in registering their land in the future. To achieve land order before the specified period ends, it is necessary to procure a land registration program from the government or special counseling related to sporadic land registration in areas that have not yet become the object of systematic registration by the Land Office and related supporting apparatus such as sub-districts and village officials in order to encourage the community to actively register their land sporadically so that before the time period ends, the community has registered their land with evidence of former customary rights owned.

### ACKNOWLEDGMENT

Praise and gratitude to God Almighty, because for His blessings and grace, I can complete this Journal. The writing of this journal was carried out in order to fulfill one of the requirements for applying for a lecturer position at Madura University. The author realizes that in writing this journal there are still shortcomings, for that constructive criticism and suggestions are expected to be able to perfect this journal. at the end of the word, the author would like to thank you and hopefully this journal can be useful for all parties in need.

### REFERENCES

- 1) ARDIAN, S. (2010). *PERALIHAN HAK ATAS TANAH DAN PENDAFTARANNYA*. JAKARTA: SINAR GRAFIKA.
- 2) Ari Sukanti Hatagalung, L. C. (2012). *Hukum Pertanahan di Belanda dan Indonesia*. Jakarta: Pusrika Laran.
- 3) Bachtiar, E. (1983). *Pendaftaran Tanah di Indonesia dan Peraturan-Peraturan Pelaksanaannya*. Bandung: Alumni.
- 4) Boedi, H. (2008). *Hukum Agraria Indonesia Sejarah Pembentukan Undang-Undang Pokok Agraria Isi Dan Penjelasannya Jilid 1 Hukum Tanah Indonesia*. Jakarta: Djambatan.
- 5) Boedi, H. (2008). *Hukum Agraria Indonesia Sejarah Pembentukan Undang-Undang Pokok Agraria Isi Dan Penjelasannya Jilid I Hukum Tanah Indonesia*. Jakarta: Djambatan.
- 6) Boedi, H. (2013). *Hukum Agraria Indonesia : Sejarah Pembentukan Undang-Undang Pokok Agraria, Isi dan Pelaksanaannya*. Jakarta: Djambatan.
- 7) Indonesia. (t.thn.). *Peraturan Pemerintah Tentang Pendaftaran Tanah, PP Nomor 24 Tahun 1997, LN Nomor 59 Tahun 1997*.
- 8) Indonesia. (t.thn.). *Undang-Undang Dasar Negara Republik Indonesia Tahun 1945*.
- 9) Indonesia. (t.thn.). *Undang-Undang Nomor 5 Tahun 1960 tentang Peraturan Pokok Dasar dan Pokok-Pokok Agraria*.
- 10) Laksono, U. (2011). *Penguasaan Tanah Masyarakat Adat (Studi Budaya Hukum Masyarakat Samin di Desa Baturejo, Kecamatan Sukolilo Pati, Jawa Tengah)*. *Supremasi Jurnal Hukum, Vol IV No. 1*.
- 11) Nurlinda, I. (2009). *Prinsip-Prinsip Pembaruan Hukum Agraria*. Jakarta: PT. Rajagrafindo Persada.
- 12) Santoso, U. (2009). *Hukum Agraria & Hak-hak Atas Tanah*. Jakarta: PT. Fajar Interpratama Offset.
- 13) Soekarno, S. &. (2003). *Penelitian Hukum Normatif, Suatu Tinjauan Singkat*. Jakarta: Raja Grafindo Persada.

## Analysis of Old Proof of Rights Holders According to Government Regulation Number 18 of 2021

- 14) Tan, D. (2021). *Metode Penelitian Hukum : Mengupas dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum*.
- 15) Urip, S. (2019). *Pendaftaran dan Peralihan Hak Atas Tanah*. Jakarta: Prenadamedia Group.



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## Challenges of ICT Integration in the Teaching of Business Statistics in Cross River State's Colleges of Education and Polytechnics



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**ABSTRACT:** This study's primary goal was to investigate the obstacles that stand in the way of ICT inclusion in the teaching of business statistics in colleges of education and polytechnic in Cross River State. The pertinent literature was examined. This study used a survey research approach, with 93 participants, including 63 male and 40 female business educators. The researchers used no representative group in this research as all of the participants were sufficient in size to be invested in their entirety. The necessary data were gathered using one study instrument known as the "Challenges of ICT Integration and Teaching of Business Statistics Questionnaire". Three experts—one in measurement and assessment and two in business statistics—validated the questionnaires. Cronbach Alpha statistics were used to test its reliability, and the results showed that the instrument had a reliability index of 0.84 and 0.81, respectively. Mean statistics were utilized to analyze the data collected following the distribution of the questionnaires, and an independent t-test was employed to assess the hypotheses at the .05 level of significance. The study's analysis of the data revealed no statistically significant differences between male and female business educators in their mean ratings of teacher-level and institutional-level impediments to ICT integration in the teaching of business statistics. In light of its discoveries, the investigation recommends the following: Business educators should encourage training on digital tools pertinent to the teaching of business statistics. Educational leaders should promote the incorporation of electronic devices in teaching, by allocating enough funds for the purchase and upkeep of ICTs and other resources that support their use.

**KEYWORDS:** Challenges, ICT Integration, Teaching, Business Statistics

### I. INTRODUCTION

Information and Communication Technology (ICT), has evolved into one of the fundamental pillars of contemporary society. Both in rich and emerging nations, the rapid technological transition has had a profound impact on a variety of segments. Hence, the exponential expansion of ICT use in education around the world is not surprising. Information and Communication Technology has a higher influence than any other innovation in education (Fluck, 2013). Digital technologies provide a variety of devices that function in conventional in addition to virtual learning environments and help in creating an engaging learning atmosphere (Jogezai et al., 2021). In the same way, technological innovations have altered the field of learning and walked educational practices into further collaboration and efficiency (Lin et al., 2017). Today, almost all nations view ICT proficiency as a basic component of education that helps students build their capacity for teamwork, problem-solving, analytical reasoning, and learning for themselves, among other abilities (Yuen, Law, & Wong, 2013).

According to Kozma and Anderson (2012), technological innovations in education are changing educational settings through the implementation of innovative curricula that focus on contemporary problems, providing scaffolding and instruments for better education, giving learners and instructors a tone of opportunities to contribute ideas as well as the capacity to think critically, and establishing worldwide and local networks which involve learners, instructors, households, engaged investigators, and various stakeholders. According to Hepp (2014), information and communication technologies can be utilized within school systems in instructional, social, technological, expert, and managerial aspects. The word "ICT" refers to a wide variety of technologies and assets that are utilized to organize and produce knowledge (Fluck, 2013). These devices, which offer a range of useful instruments to promote transformation and improvement, include television broadcasts as well as radio and more modern electronic devices including systems and the World Wide Web. Information and communications technology (ICT) is a generic term for satellite links, software, computers, networks, and other related devices that allow individuals to obtain, analyse, generate, trade, and apply information, expertise, and data in manners which were not possible before (Grimus, 2010).

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Educational institutions use technology like videoconferencing, shared software, digital photography, video walls for image projection, editing tools, and online learning communities to develop and transmit ideas with greater efficiency. Additionally, simulated art galleries, virtual museums, chat and instant messaging, and other great tools for sharing knowledge are used in classrooms. Livetext is yet another innovative application that enables online learning and allows lecturers to submit material on web pages. Technologies for online learning are useful for electronically preserving content. Using whiteboards that interact, conventional blackboards are changed into an altogether novel learning device. Condie and Munro (2017) identify handheld devices, instructional platforms, and online schools as sharing tools that are currently swiftly seizing the spotlight in a variety of devices supporting instructional endeavours. Additionally, educational websites and digital portfolios provide a range of ICT-based resources for instructional design, interaction and cooperation, and material preservation. E-portfolios are larger, more exclusive digital environments where individuals may keep, organise, and customise information in addition to interacting and receiving input (Becta, 2015). A range of resources and applications, such as blogs, forums, email, and chat, may also be crucial.

Applications of cutting-edge technologies have the potential to affect every aspect of school operations. In light of this, educational institutions can no longer be considered basic arenas due to swiftly evolving technological transformation. Participants within the educational sector are currently encouraging the productive application of ICT to stimulate creative methods to classroom instruction, handling data, career advancement, innovation and so on. Education offerings and outcomes could potentially be enhanced in an array of methods by developing an arsenal of ICT-based practices for capturing emerging information, configuring and storing it in numerous forms, communicating it properly for fast understanding, as well as applying it in novel manners. This could particularly aid students in reaching their full ability. The method of determining when and the way technologies complement in an educational context is termed information and communication technology incorporation (Rosnaini & Mohammed, 2008). According to Chen et al. (2018), technology-mediated pedagogical practices allow learners to grow their abilities, increase their drive to learn, and improve their comprehension of material in an effective manner in addition to improving the standard of education (Akram et al., 2021a). Additionally, for the past few years, it has become widely acknowledged that using technology in the classroom is essential to improving the efficacy of teaching practices (U.S. Department of Education, 2017). A number of investigations also emphasized the importance of ICT-incorporated learning strategies in satisfying the demands of learners by maintaining their interest as well as fostering greater concentration, which is regarded as an essential indicator of their progress in school (Xu et al., 2021). Technology-integrated education improves learners' mental awareness and academic performance, according to Liu et al. (2022). Additionally, ICT-integrated learning-teaching practices assist learners in overcoming their educational obstacles while ensuring that these individuals are fully involved in their studies (Liu Z. et al., 2021). This is done by enabling people to remain in touch with their classmates and teachers.

The integration of technological advances in information and communication into teaching has grown into a core component of the modern industrial culture at an incredible (Rampersad, 2011); alarming rate (Olaofe, 2015). Currently, many countries put a great priority on understanding the basic tenets and capabilities of technological innovation (Rampersad, 2011). According to Eadie (2010), the majority of schools in Australia, the United States of America, England, and Hong Kong have incorporated state-of-the-art ICT tools to improve teaching practices. This is because the application of information and communication technology is an issue of immense significance to all people (Olaofe, 2015). Every person gets the power to use the World Wide Web's free content by accessing internet pages from any place at any moment. Every time people chat on a cell phone writes electronic mail, go to a financial institution, enter a book store, hear sports broadcasts on the airwaves, follow news programmes on the screen, perform duties in a workplace, see a physician, travel, they are utilizing information and communication technologies.

Today, everyone agrees that information and communication technology is a crucial tool for 21st-century education. It is noteworthy that almost all educators have positive views of ICT and claim to utilize technological devices for management, scheduling, producing workbooks along with additional teaching resources, evaluating learners, and keeping track of their academic achievement (Ofsted, 2014). Appropriate ICT use boosts academic impact in fully networked classrooms, improves learning outcomes, and expands access to schooling (Tinio, 2013). Technology, as demonstrated by Kimble (1999), can boost learners' self-confidence and enthusiasm to learn. According to Balanskat, Blamire, and Kefala (2016), information and communication technology can positively impact learners' learning outcomes, zeal, focus, collaboration, conversation, and operational understanding. On the contrary side, it offers plenty of evidence for how ICT has increased educators' enthusiasm, efficacy, and collaboration.

Information and communication technology has a favourable impact on curriculum, pedagogy, student learning, and learning environments, as demonstrated in the Newhouse (2012) report. According to Newhouse (2012), using ICT in the classroom can boost independent learning, collaborative effort, higher-order thinking, efficiency, and scholastic deficiencies. Appropriate use of technology in educational settings, according to Newhouse, Trinidad, and Clarkson (2012), enables educators to utilise an

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appropriate educational strategy that balances a learner-centred collaborative approach with instructor-centred teaching. According to Bailey, Day, Day, Gryphon, Howlett, Kane, Kirk, McCullough, McKieman, McMullen, Perfect, Ramsey, and Wood (2014), teachers' efficiency has grown as a result of their usage of ICT. This is due to the fact that ICT has enhanced the management, storage, and upkeep of work in higher educational institutions.

ICT-based techniques have improved the standard of studies and inventions, creation of curricula, management, engagement with students, and strategic planning in Indian higher learning institutions, claim Kumar and Kumar (2016). Yet, past studies have highlighted the negative consequences of technology in school settings. The bulk of adverse consequences, according to Kimble (1999), are associated with how technologies are employed in the school, the technological expertise and competence of the educators, and the corresponding expenses of obtaining the equipment. In emerging economies, including Nigeria variables like a shortage of technology facilities (Akram et al., 2021a), broadband connectivity and power (Akram et al., 2021b), technical proficiency (Asad et al., 2020), as well as a lack of teacher preparation, also hinder the effective application of ICT in school settings, (Abbasi et al., 2021). Notwithstanding the reality, there are considerable barriers on the road. Information and communication technology has been included in the curriculum at various higher education institutions in some nations, changing how teaching and learning are done.

Unfortunately, a lot of institutions worldwide are currently struggling to embrace ICT because of significant barriers (Becta, 2015). For one to create practical and thorough remedies for the issues, it is essential to pinpoint the reasons why educational institutions are not utilizing ICT to its maximum benefit. Balanskat (2016) divided the idea of hurdles faced by educators into two distinct groups: teacher-level barriers and school-level barriers. The challenges faced by instructors at the instructional levels encompass factors like a shortage of ICT expertise, a lacking of excitement and trust, and inadequate training for instructors, all of these are connected to how instructors view and use ICT. School-level barriers include those imposed by the educational setting, including low-quality technology facilities, restricted possession of technology resources, a campus's inadequate project-related background, a lack of instructional project-based knowledge, and a lack of computer technology integration into education methods. Unquestionably, the aforementioned has an impact on how school subjects are taught including business statistics and how students learn it.

Business statistics refers to the application of statistics to business data (Weil, 2023). According to Higherd (2023) "Business statistics" is an approach which employs statistics to glean intelligence that is helpful using the data that a company is privy to. It is a method for using data that has been compiled from several sources (Higherd, 2023); to provide ideas to assist in better choice-making in the face of uncertainty (Ukpong and Undie, 2014). The data may come from surveys, testing, or other company information technologies. It helps businesses predict what is to come and comprehend the reasons behind many current occurrences. It may be used in a variety of contexts, including business development, budgeting, and managing employees. No one can perform these functions in a technology-driven society without the knowledge of various statistical methods and principles including basic knowledge of modern technologies like statistical packages for social science (SPSS), Mini tap, Spreadsheet etc.

Today's world demands the use of technological devices for profitable business statistics instruction. This is due to the wide variety of instruments offered by current technologies which can be applied in education to improve the standard of education. Bransford, Brown, and Cocking (2010) contend that technological advances can also assist students in preparing for modern-day lifestyles. Individuals must therefore develop the abilities required to face challenges in a technology-driven society (Grimus, 2000). This is necessary so that learners can use cutting-edge technologies to widen the breadth of their understanding, raise their interest, and develop relevant skills. While new technologies have become an essential aspect of instruction, learning, and school administration, numerous obstacles have rendered this ineffectual in the majority of nations including Nigeria (Tubin, 2013).

The Nigerian educational system is aimed at training learners to be future staff members that are proficient in technology, imaginative, and knowledgeable. This corresponds to globalization and the digital superhighway. To be successful in today's globalization, the country must be inventive and imaginative. Educators are considered critical participants in integrating ICT into traditional teaching environments and preparing students for today's digital world. This is due to the fact that ICT can provide engaging and innovative educational experiences. Unfortunately, the investigators saw that lecturers, particularly business educators, are constrained in their ability to present a variety of learning resources as a result of the difficulties mentioned in the paragraph that preceded them. Against this backdrop, this research was undertaken.

## **II. PURPOSE OF STUDY**

The primary goal of this study was to look into the impediments to ICT incorporation in the teaching of Business Statistics in Cross River State's colleges of education and polytechnics.

This study specifically aims to determine the difference in:

## Challenges of ICT Integration in the Teaching of Business Statistics in Cross River State's Colleges of Education and Polytechnics

1. The mean ratings of male and female business educators on the extent to which teacher-level impediments limit ICT integration in the teaching of Business Statistics in colleges of education and polytechnics in Cross River State.
2. The mean ratings of male and female business educators on the extent to which school-level obstacles inhibit ICT integration in the teaching of Business Statistics in colleges of education and polytechnics in Cross River State.

### III. RESEARCH QUESTIONS

The following study questions gave direction to the study:

1. To what extent do male and female business educators differ in their mean ratings of the extent to which teacher-level hurdles prohibit ICT integration in the teaching of business statistics in Cross River State colleges of education and polytechnics?
2. To what extent do male and female business educators differ in their mean ratings of the extent to which school-level hurdles prohibit ICT integration in the teaching of business statistics in Cross River State colleges of education and polytechnics?

### IV. STATEMENT OF HYPOTHESES

The investigation was guided by the following null hypotheses:

1. There is no significant difference in the ratings of male and female business educators on teacher-level impediments to ICT incorporation in the teaching of Business Statistics in colleges of education and polytechnics in Cross River State.
2. There is no significant difference in the mean ratings of male and female business educators on school-level barriers to ICT integration in the teaching of Business Statistics in colleges of education and polytechnics in Cross River State.

### V. METHOD

This study used a survey research approach, with 93 participants, including 63 male and 40 female business educators from two colleges of education and two polytechnics in Cross River State (Academic Planning Unit, 2022). Since the population was small enough to be researched as a whole, the entire population was investigated. Hence, the respondents were chosen using the census approach. The researchers created one research tool titled: Challenges of ICT Integration and Teaching of Business Statistics Questionnaire" (CICTITBSQ). Items assessing barriers to ICT integration were created on a four-point scale with Very Great Extent (VGE), Great Extent (GE), Little Extent (LE), and Very Little Extent (VLE) whereas items assessing the teaching of Business Statistics were created on a scale with the same four-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). There were two sections to the CICTITBSQ. Whereas section A had seven items created to measure each of the first and second independent sub-variable, section B featured 10 items created to measure the dependent variable, giving the instruments a total of 24 items. Three experts—one in measurement and evaluation and two in business education—validated the questionnaire. The face validity was carried out by a measurement and evaluation expert, and the content validity was carried out by two business education specialists. Before the instrument's updated version was distributed to the respondents, the three experts' comments were used to improve it. All copies of the questionnaire that were distributed were retrieved. The instrument underwent a pilot test to verify internal consistency to provide data for a reliability test. Thirty respondents who were not an integral component of the study's participants were used to accomplish this. Using Cronbach Alpha statistics, the instrument's reliability was evaluated, and the results showed reliability coefficients of 0.84 and 0.81. For the researchers to analyze the data obtained after the completion of the survey and to address the research objectives, mean statistics were used. An independent t-test was then used to evaluate the null hypotheses at the .05 level of significance. The following choices helped to shape how the results of the data analysis were interpreted. The mean values of the items were interpreted for the study questions using the real limits of numbers. Hence, any items with mean values between 3.50 and 4.00 were classified as VGE, and items with mean scores between 2.50 and 3.49 were classified as GE. Similarly, to this, any item with a mean score of 1.50 to 2.49 was considered LE, while things with a mean score of 1 to 1.49 were considered VLE. For the hypotheses, if the value determined was more significant than the threshold at the .05 level of significance, the null hypothesis was considered; if not, it was discarded.

### VI. RESULT

**Table 1. Mean ratings of male and female business educators on the extent to which challenges at the instructor level inhibit ICT integration in the teaching of business statistics in colleges of education and polytechnics in Cross River State**

S/N	Educator-level limitations	X	S.D	Remarks
1	Worry regarding cutting-edge innovations	3.54	0.81	Very Great Extent
2	ICTs-related difficulties with self-drive	3.55	0.82	VGE

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3	Inadequate education for teachers regarding the efficient use of digital technologies in the classroom	3.60	0.83	VGE
4	Lack of ICT skills	3.76	0.85	VGE
5	Apprehension of compromising one's expert independence when instructing	3.52	0.80	VGE
6	Resistance to innovative approaches to teaching	3.63	0.84	VGE
7	Being unable to stay up with current computer technology advances	3.56	0.83	VGE
	Grand mean	3.59	0.82	

The results in Table 1, show that the mean values varied from 3.52 to 3.76 with a grand mean of 3.59, which is within the cutoff range of 3.50 to 4.00, indicating that full ICT integration into the teaching of business statistics in colleges of education and polytechnics in Cross River State, Nigeria, is very much hindered by barriers at the teacher-level. The respondents' views on items one through seven did not differ, according to the standard deviation, which was in the range of 0.80 to 0.85.

**Table 2. Mean ratings of male and female business educators on the extent to which school-level impediments limit ICT incorporation in the teaching of business statistics in colleges of education and polytechnics in Cross River State**

S/N	School-based obstacles	X	S.D	Remarks
8	Lack of Internet connectivity	3.55	0.83	Very Great Extent
9	Insufficient digital literacy aids for instructor manuals	3.50	0.81	VGE
10	Unreliable source of power supply	3.74	0.86	VGE
11	Poor maintenance culture	3.82	0.87	VGE
12	Failure to keep business studies educators who are technologically proficient	3.69	0.85	VGE
13	Limited access to ICT equipment	3.67	0.84	VGE
14	Absence of ICT mainstreaming into schools' strategies.	3.56	0.82	VGE
	Grand mean	3.64	0.84	

The results shown in Table 2 demonstrate that the mean values varied between 3.50 and 3.82 with a grand mean of 3.64, which is within the cutoff range of 3.50 to 4.00, and that this suggests that school-level barriers significantly impede full ICT integration in the teaching of business statistics in colleges of education and polytechnics in Cross River State, Nigeria. The standard deviation varied from 0.81 to 0.87, showing that the respondents' opinions on items 8 to 14 were consistent.

**Table 3. Independent t-test analysis of the difference in the mean ratings of male and female business educators on instructor-level constraints to ICT integration in the teaching of business statistics in colleges of education and polytechnics in Cross River State.**

Variable	N	X	S.D	Df.	t-cal.	t-crit.	Decision
Male	63	3.84	0.87	91	1.347	1.984	Not significant
Female	40	2.64	0.78				

The computed t-value of 1.347 is less than the threshold value of 1.984 at a 0.05 level of significance with 91 degrees of freedom, according to the data in Table 3. Because the calculated figure is smaller than the crucial value, the null hypothesis was adopted. This demonstrates that there are no discernible differences between male and female business educators in their mean ratings of teacher-level obstacles to ICT integration in business statistics delivery in Cross River state colleges of education and polytechnics.

**Table 4 . Independent t-test analysis of the difference in the mean ratings of male and female business educators on school-level setbacks to ICT integration in the teaching of business statistics in colleges of education and polytechnics in Cross River State.**

Variable	N	X	S.D	Df.	t-cal.	t-crit.	Decision
Male	63	3.79	0.85	91	0.173	1.984	Not significant
Female	40	2.59	0.76				

## Challenges of ICT Integration in the Teaching of Business Statistics in Cross River State's Colleges of Education and Polytechnics

With 91 degrees of freedom and a 0.05 threshold of significance, Table 3's analysis shows that the computed t-value of 0.173 is less than the critical value of 1.984. Since the calculated value is lower than the important value, the null hypothesis was approved. This reveals that there are no significant differences between male and female business educators in terms of school-level limitations to ICT integration in the teaching of business statistics in colleges of education and polytechnics in Cross River State, Nigeria.

### VII. DISCUSSION

The findings of the current research indicate that there exists no significant difference between male and female business educators' mean judgements of how teacher-level barriers prevent full digital inclusion in the teaching of business statistics in Cross River State's colleges of education and Polytechnics. This result suggests that there are limitations at the instructor level that prohibit ICT from fully being incorporated into the teaching of business statistics in the schools aforementioned. This finding is in line with Balanskat et al. (2006) who opinionated that instructor-level barriers include factors related to educators' views and strategies about technological advances, among them a dearth of knowledge regarding ICT, a lack of inspiration to use and trust with ICT, and inadequate education for educators. The result of this research is consistent with Akram et al. (2021a) finding that inadequate supply of electronic devices including energy impedes the successful utilization of digital technologies in education environments in developing nations such as Nigeria. This finding is in line with their opinion. This outcome could be what it is as many educators tend to be more accustomed to conventional approaches to instruction and gadgets, whereas some are still struggling to comprehend the critical significance of electronic devices for education in a culture which is mostly dependent on technological advances.

The results of the present investigation show that there is no significant difference between male and female business educators' average assessments of how much school-level barriers hinder digital technologies from being fully integrated into the classroom instruction of business statistics in colleges of education and polytechnics in Cross River State, Nigeria. This research demonstrates how ICT cannot be utilized to teach business statistics in the institutions mentioned above due to limitations at the institution's level. This result is in agreement with Balanskat et al. (2006)'s theory that educational variables like a shortage or low quality of technologies, restricted usage of technological tools, inadequate academy project-related expertise, and the failure to incorporate technological innovations into schools' approaches are school-level constraints to integrating ICT. This outcome may be explained by the fact that a few institutions that are ICT-equipped lack an independent supply of electricity, connectivity to the web, an effective upkeep tradition, control over modern technology, and the latest technology inclusion to educational institutions' instructional methods. The vast majority of educational institutions are still in the infancy phase of implementing technological tools.

### VIII. CONCLUSION AND RECOMMENDATIONS

Technological innovations have arisen as an essential tool in education and the job market, especially in the modern era. Learners at all levels—primary, secondary, and university—benefit from its full integration into the educational system. As such, there is increasing emphasis on the application of digital gadgets in instructional settings. Electronic device utilization is frequently emphasized in conventional business statistics education, as was already mentioned. As a consequence, in contemporary settings, a curriculum which promotes proficiency and productivity as well as the appropriate use of technological tools is today desired. The reason is that technological innovations act as an effective catalyst which can change a variety of academic practices. This makes it evident that unless purposeful actions are taken by important actors in the academic sector to ensure the widespread use of communications technologies in instruction, educators might not be capable of generating digital natives for the world's marketplace in the not-too-distant future. In light of the study's outcomes, the study recommends among others that: Training on educational advanced technology pertinent to the teaching and learning of business statistics should be encouraged by business educators. Educational leaders should support the use of ICTs in the classroom by allocating enough funds for the purchase and upkeep of ICTs and other tools that make their use easier.

### REFERENCES

- 1) Abbasi W. T., Ibrahim A. H., Ali F. B. (2021). "Perceptions about english as second language teachers' technology based english language teaching in Pakistan: Attitudes, uses of technology and challenges," in *International Conference on Emerging Technologies and Intelligent Systems*, (Cham: Springer;), 314–325. 10.1007/978-3-030-82616-1\_28
- 2) Akram H., Aslam S., Saleem A., Parveen K. (2021b). The challenges of online teaching in COVID- 19 pandemic: a case study of public universities in Karachi. *Pakistan. J. Inf. Technol. Educ. Res.* 20 263–282. 10.28945/4784

## Challenges of ICT Integration in the Teaching of Business Statistics in Cross River State's Colleges of Education and Polytechnics

- 3) Akram, H., and Yang, Y. (2021a). A critical analysis of the weak implementation causes on educational policies in Pakistan. *Int. J. Human. Inno.* 4, 25–28. doi: 10.33750/ijhi.v4i1.104
- 4) Anderson, B. S. (2012). *Antecedents and impacts of knowledge management practices supported by information technology: An empirical study in a manufacturing context*. Research thesis (PhD), The University of Toledo.
- 5) Asad, M. M., Hussain N., Wadho M., Khand Z. H., Churi P. P. (2020). Integration of e-learning technologies for interactive teaching and learning process: an empirical study on higher education institutes of Pakistan. *J. App. Res. High. Edu.* 2020:103. 10.1108/JARHE-04-2020-0103
- 6) Bailey, L., Day, C., Day, T., Griffin, A., Howlett, P., Kane, M., Kirk, C., McCullough, N., McKiernan, B., McMullen, T., Perfect, K., Ramsey, E., & Wood, R. (2014). *Using ICT in schools: Addressing teacher workload issues*. New York: Price water house Coopers.
- 7) Balanskat, A., Blamire, R., & Kefala, S. (2016). *The ICT impact report: A review of studies of ICT impact of schools in Europe*. *International Journal of Information and Communication Technologies*, 2(1): 22-26.
- 8) Becta, S. (2015). *Evidence on the progress of ICT in education*. Available at [http://www.Becta.org.uk/page\\_documents/research/becta\\_review-feb05.pdf](http://www.Becta.org.uk/page_documents/research/becta_review-feb05.pdf). Retrieved 16<sup>th</sup> October, 2022.
- 9) Bransford, A.H.K., Brown, N. & Cocking, K.C. (2010). ICT implementation and school leadership: Case studies of ICT integration in teaching and learning. *Journal of Educational Administration*, 41(2): 158-162.
- 10) Chen, S. Y., Hung, C. Y., Chang, Y. C., Lin, Y. S., and Lai, Y. H. (2018). A study on integrating augmented reality technology and game-based learning model to improve motivation and effectiveness of learning English vocabulary, in *2018 1st international cognitive cities conference (IC3)*, (Piscataway: IEEE), 24–27. doi: 10.1109/IC3.2018.00015
- 11) Clackson, S.S. (2012). *The 21st-century teacher*, New York: Harper Row.
- 12) Condie, R., & Munro, R. (2007). *The impact of ICT in schools: A landscape review*. Strathclyde: University of Strathclyde.
- 13) Eadie, G. M. (2010). *The impact of ICT on schools: Classroom design and curriculum delivery*. education centre, University of Strathclyde. Winston Churchill: Memorial Trust.
- 14) Fluck, A. (2013). Why isn't ICT as effective as it ought to be in school education? , ICT and teacher of the future: International Federation for Information Processing Working Group Conference, 26-31 January, 2013. Melbourne, Australia.
- 15) Grimus, B. (2010). *Progress and impact of technology in education*. Harnessing Technology Review. Available at [http://www.partners.becta.org.uk/.../research/harnessing\\_teaching\\_review07.pdf](http://www.partners.becta.org.uk/.../research/harnessing_teaching_review07.pdf). 16<sup>th</sup> October, 2019.
- 16) Hepp, G. (2014). Role of information and communication technology in education. *Journal of Educational Technology*, 2(1): 24-30.
- 17) Highered, E. (2023). What is business statistics? meaning & importance. <https://www.edureka.co/blog/business-statistics/>
- 18) Jomezai, N. A., Ismail, S. A. M. M., and Baloch, F. A. (2020). Head teachers' change facilitation styles and teachers' concerns about ICT integration. *Manag. Edu.* 2020, 1–12
- 19) Kefala, W.L. (2016). *21st-century education: Issues and challenges*. New York: Harper Row.
- 20) Kimble, C. (1999). *The impact of technology on learning: Making sense of the research*. New Jersey. Mid-Continent Regional Educational Laboratory.
- 21) Kozma, L. & Anderson, C.X. (2012). Information and communication technology: Transforming schools. *Journal of Educational Technology*, 2(1): 42-27.
- 22) Kumar, A., & Kumar, A. (2016). IT-based KM in Indian higher education: Addressing quality concerns and setting the priorities right. *Journal of Knowledge Management Practice*, 7(3): 8-12.
- 23) Lin, Y. S., Chen, S. Y., Su, Y. S., and Lai, C. F. (2017). Analysis of students' learning satisfaction in a social community supported computer principles and practice course. *Eurasia J. Math. Sci. Tech. Edu.* 14, 849–858. doi: 10.12973/ejmste/81058
- 24) Liu, Z., Kong, X., Liu, S., Yang, Z., and Zhang, C. (2022). Looking at MOOC discussion data to uncover the relationship between discussion pascings, learners' cognitive presence and learning achievements. *Edu. Inf. Technol.* 2022, 1–24. doi: 10.1007/s10639-022-10943-7
- 25) Liu, Z., Zhang, N., Peng, X., Liu, S., Yang, Z., Peng, J., et al. (2021). Exploring the relationship between social interaction, cognitive processing and learning achievements in a MOOC Discussion Forum. *J. Educ. Comp. Res.* 2021:27300.
- 26) Newhouse, C.P. (2012). *Literature review: The impact of ICT on learning and teaching* Melbourne: Western Australian Department of Education.

## Challenges of ICT Integration in the Teaching of Business Statistics in Cross River State's Colleges of Education and Polytechnics

- 27) OFSTED (2014). *ICT in schools: The impact of government initiatives five years on*. United Kingdom: OFSTED Publication Center.
- 28) Olaofe, A. (2015). Education sector development, *Journal of educational administration*2(2): 10-16.
- 29) Rampersal, R. (2011). *Modern technologies in education*. New York: McGraw Hill Books
- 30) Rosnaini, M. & Mohd, A. (2018). ICT in the 21<sup>st</sup> century. *Journal of educational technology*, 2(1):15-21.
- 31) Tinio, V.L. (2013). *ICT in education*. New York: Harper and Row.
- 32) Tubin, D. (2013). When ICT meets schools: Differentiation, complexity and adaptability. *Journal of Educational Administration*, 45(1): 8-13.
- 33) Ukpong, O.U. & Undie, S.B. (2014). Perceived difficulties in business statistics and business education students performance in Business Statistics in Colleges of Educator in South- South, Nigeria. *Journal of Education and Practices* 5 (2), 32-39.
- 34) U.S. Department of Education (2017). *Office of educational technology. Reimagining the role of technology in education: 2017 national education technology plan update*. Washington, DC: U.S. Department of Education.
- 35) Weil, B. (2-13). What is business statistics and why does it matter. <https://www.bestcolleges.com/business/what-is-business-statistics/>
- 36) Xu, Z., Yuan, H., and Liu, Q. (2021). Student performance prediction based on blended learning. *IEEE Trans. Educ.* 64, 66–73. doi: 10.1109/TE.2020.3008751
- 37) Yuen, L., Law, H. & Wong, Y. (2013). *A research model for collaborative knowledge management practice, supply chain integration and performance*. Research thesis (PhD), The University of Toledo.



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## Perceived Influence of Whatsapp Usage on Students' Academic Achievement in the University of Cross River State



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**ABSTRACT:** The study determined the perceived influence of WhatsApp usage on students' academic achievement at the University of Cross River State. Two research questions were asked, two hypotheses were developed, and evaluated at a 0.05 level of significance in order to accomplish the goal of this study. This study adopted a survey research design. Purposive sampling and census techniques were used to select 258 400-level business education students that participated in the study. A validated questionnaire titled "WhatsApp Usage Questionnaire" and approved students' results in Vocational Guidance (BED 4107) for the 2020/2021 academic session were used for data collection. A reliability index of 0.82 was obtained for the questionnaire using Cronbach Alpha statistics after a trial test was conducted on twenty (20) business education students at the University of Calabar. Hypotheses were tested at a .05 level of significance using a population t-test and one-way ANOVA. Research outcome indicates that students' frequency of WhatsApp usage is significantly high and WhatsApp application significantly influenced students' academic achievement in Vocational Guidance (BED 4107). In light of the research outcomes, it was recommended, that the school's administration should have a course on time management taught across all disciplines, as this course would enlighten the students on what they should prioritize; Hence, they would be able to strike a balance on the period used on WhatsApp for scholarly work and for leisure.

**KEYWORDS:** What Sapp Application, Students, Academic Achievement.

### I. INTRODUCTION

Education is an instrument for national and economic development. Business education, which is a component of general education is designed to prepare students for gainful employment as teachers of business subjects, office workers and business tycoons. The programme, according to Ben (2010) prepares students for specific occupational areas including those in business data processing systems, vocational supervisory and administrative management, general office clerical work, stenography, secretarial, office equipment, accounting, and computing, filing, as well as business teacher education. Preparation for these occupations can be done via the application of social media.

Social media is a digital interaction platform that allows individuals to communicate easily with one another as well as exchange ideas, personal messages, and different material. These platforms employ digital mediums that can only be accessed via links to the web and allow individuals to send and receive messages that include particular phrases, videos, images, as well as recordings Etim (Udosen, & Ema, 2016). These platforms include WhatsApp Messenger, Skype, Yahoo Messenger, 2go Messenger, WeChat, BlackBerry Messenger, Facebook Messenger, Instagram, Google Talk, and Twitter (Asemah & Edegoh, 2012); Other services include YouTube, LinkedIn, Google Email, E-Mail, Eskimi, E-Buddy, Gmail, Badoo, Mobofree, Palmchat, Nigerloaded, Nigergist, Nimbuzz Smoothie, and others (Animasahun, 2015) are just a few examples of social media platforms. The majority of people utilize the aforementioned networks to interact with both new and old companions, whether they meet live or via the Internet (Asemah & Edegoh, 2012). Regardless of whether one views them from a private, professional, or scholarly standpoint, social-media networks (SNS) are for digital connection with individuals who desire to engage with other people regarding topics of interest to them (William, et al., 2009).

WhatsApp is a free messaging programme that can be downloaded on devices. It is a freemium application offering multi-platform instantaneous mobile device services (Metz, 2016). Since it can communicate an enormous amount of text including multimedia assets, unlike texts, WhatsApp is a smartphone programme utilized for instantaneous communication applications that substitutes standard telephone messages that are brief (SMS). Notably and widely utilized internet-based platforms to interact among youngsters is now WhatsApp (Fawzi, 2015). WhatsApp is typically downloaded from an Apple App Store on smartphones. On a Windows-based computer, it may be viewed straight via the internet. For the purpose of sending and receiving messages, photos,

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audio, and/or video, it makes use of the World Wide Web. Compared to communicating via text, utilizing WhatsApp is substantially less expensive. Due to capabilities such as position communication, audio communications, and team talking, it is highly well-liked among millennials. A suitable cellphone, portable device, PC, or laptop, a link to the web, and a calling card are required in order for using WhatsApp. While it can move a person's contacts to a different device, the programme uses one's telephone number as a distinctive profile identification because one's account is stored on the phone. It is well-liked because users only need to pay for their internet connection to chat with one another. Starting out is simple. Just insert the user's phone number into the programme. After that, it searches via acquaintances on the handset to determine if anyone else has the application already downloaded. The individual then has the option to send out emails to the individuals the programme has found, welcome additional people, or both.

A single person may remain in touch with all of their loved ones at once and communicate with them over a distance with the aid of this software. (Brian & Jan, 2009). Numerous qualities of WhatsApp can make it appealing and important in terms of how learners and educators engage, share information, and work together inside and among one another in today's educational setting as well as how they absorb content. WhatsApp includes its ability to safeguard interactions, and prevent conversations and calls from being accessed by outsiders. It also allows individuals to include media recordings while conversing, lets them know if others are connected and when they last used WhatsApp, and lets them know when discussions have not been sent and read.

Even as the programme provides lots of perks, it possesses several drawbacks which are presently doing greater damage rather than help for learners nowadays. With regard to the WhatsApp application, according to Facebook Statista (2018), there are one billion everyday registered WhatsApp users worldwide. Every day, WhatsApp sends and receives 55 billion texts. Over one billion videos and 4.5 billion photographs are posted on WhatsApp every day. WhatsApp is available in sixty different tongues worldwide. Since it first had a billion users each month (WhatsApp; Facebook Statista, 2018), WhatsApp has added fresh capabilities like two-step verification security, Status video calls, and a redesign that has made it more appealing to those using it. Its impact has attracted several research efforts.

Sujit (2018) examined the impact of the web on the educational achievement of learners at Kondigre's Ideal Institute of Management and Architecture. Interviews and questionnaires served as the two main means of data collection. In order to accomplish this, information was gathered from sixty learners pursuing graduate along with bachelor's studies in corporate management using a standardized survey. Frequency counts were used for the data analysis. The research found that WhatsApp had an unfavourable impact on educational outcomes as opposed to facilitating improved knowledge exchange for learners by rendering interaction simpler and more quickly. The investigation further indicates that WhatsApp consumes a significant amount of learning duration, which contributes to delay issues, undermines grammar and spelt words, causes learners to lose focus in class, makes it hard to balance digital pursuits like WhatsApp and studying, and prevents youngsters from finishing their homework and sticking with their personal learning schedule.

With a similar spirit, Golam (2015) made an effort to research WhatsApp Messenger's effects on undergraduates at Begum Rokeya University in Rangpur, Bangladesh. A questionnaire approach was applied to the study's execution. The poll was carried out using an itinerary of questions. In this study, judgmental sampling was utilized. A poll was employed as the means of gathering data for the research and it was utilized to perform the investigation empirically using 200 participants. The research indicated that WhatsApp has a serious detrimental effect on learners, impairing their ability to learn, behave appropriately, and lead normal lives. It disrupts learning time as well as prevents their attention from finishing their homework. The programme in question is reported as extremely addicting. The effect is so strong that people abandon actual practical pursuits. Many of them deteriorate as a consequence of internet-related distractions. It is possible that student's academic achievement is influenced by their usage of social programmes and websites. This is due to the fact that when messaging on any of such networking sites, there is a necessity to employ shorter styles of expression due to space constraints and to save money. Many frequently lose track and employ identical brief types of expression in schools, particularly while taking examinations, to convey what they want to say to their pals because they comprehend the protocol in the forum as well. Students utilise words like "4" instead of "for", "u" instead of "you", "d" instead of "the", and so on. Each of these factors might have an impact on their educational outcomes.

Ijeoma and Tusiima (2017) looked into the impact of Facebook and WhatsApp use on the educational outcomes of high school students in Rivers State, Port Harcourt City, Nigeria. The investigation involved 300 senior high school level two learners. Two study questions and accompanying assumptions were part of the study's objectives. The approach known as correlational research was used. The Social Networking Survey and the English Language Achievement Test constituted the two tools utilized to gather the responses. The Digital Media instrument reliability score was 0.94, while the English Language Achievement Test's score was 0.82. The collected data were analyzed using basic and intricate regression methods. The results showed that WhatsApp had a statistically significant value of 0.01 indicating that it had a substantial effect on learners' use of the application on their schoolwork, and because the proportionate value was smaller than the alpha level of 0.05, the null assumption was disregarded.

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Facebook, on the contrary, had a significance level of 0.19, indicating that there is no significant association because the p-value is large. In addition, if all of the internet sites are combined, there is a substantial link of roughly 3.9 per cent that influences how well learners do in school (Undie, et al., 2023). In light of these findings, it was advised, amongst other things, that governments, carers, instructors, professionals in counselling, and educational institutions regulate the involvement of learners in the application of digital tools so that they might be used constructively and effectively.

Additionally, Sharma and Shukla (2016) conducted a sociological investigation to determine the effect of online transmitters, particularly WhatsApp, on young people. According to Sharma and Shukla's (2016) study, WhatsApp has both beneficial and bad effects on young people. Results indicated that young people devote more hours to these mobile devices than they are actually spending on their families. Whilst Internet forums are now universally recognized as critical instructional tools, it appears that learners have been wasting time on them by having fun instead of studying. People invest a lot of time in web-based actions if they wish to meet up with their current pals or establish new ones. These learners occasionally attribute a consistent drop in their performance to the numerous social media platforms. This demonstrates that just a handful of learners have knowledge of the possibilities for networking that such online media platforms provide for educational as well as professional reasons. Kuppuswamy and Shankar (2010:1150) claim in their text "the effect of internet social networks on the academic lives of Youth" that social media outlets draw their interest and then redirect it to inappropriate as well as non-educational tasks, including useless chit-chat. On the flip side, it was noted that learners have social ties to one another by exchanging everyday knowledge and having discussions on a variety of subjects. This demonstrates that networking sites are advantageous to learners since they enhance their educational opportunities.

According to the aforementioned claim, the Internet offers web-based applications that encourage working together and exchanging knowledge (Bhatt & Arshad, 2016). These tools are also useful in classrooms to foster engagement among learners and improve their education (Jairus, et al., 2017). The accomplishment of desirable educational results for learners, like intellectual curiosity and personal growth, is frequently related to participation by learners as it reflects the work and time learners commit to collaboration and instructive tasks. In contrast, Yeboah and Ewur (2014) claim that the academic success of Ghanaian higher education learners is negatively impacted by WhatsApp. Similarly, Animasahun (2015) discovered that compared to other digital systems, WhatsApp use amongst Nigerian teenagers came in second place. The unfavourable effects of online activities on their schoolwork were subsequently shown. Augustine and Nwaizugbu (2018) looked into WhatsApp usage and computer-based learning trainee instructors' success in school at the University of Port-Harcourt. For the 2016–2017 school year, the Department of Educational Management (EDM), University of Port Harcourt, offered the Computer in Education (Edu 402) course. The experimental research was conducted to determine the impact of WhatsApp if utilized as a means for providing lessons to 400-level trainee teachers. The control and experimental teams were made up of 72 EDM Accounting/Geography teacher trainees and 65 EDM Economics teacher trainees, who were chosen randomly from the population. The group serving as the control was instructed face-to-face, whereas the experimental cohort received instruction using WhatsApp's chat system. The Computer in Education Achievement Test (CEAT) was created by investigators, and an interview served as the investigation tool. The current investigation was directed by four research inquiries, three assumptions, and the use of mean, standard deviation, qualitative analysis, and t-test. The findings included the fact that there was no discernible distinction between the averages of the two sets at the post-test level. In light of the fact that new innovations like WhatsApp chat rooms along with other social media sites provide youngsters with constant and portable educational possibilities, higher education educators ought to constantly complement their traditional education with them.

Additionally, an investigation by Mohammad and Sonali (2019) that looked at how WhatsApp affected undergraduates in Surat and Navsari, Gujarat, is also worth mentioning. A structured survey was utilized to gather the responses of 105 participants as part of a method of quantitative investigation. There are a total of 25 items in the survey. The following four components of the data—badly impacted, beneficial, psychological shift, and essential—were retrieved for the factor analysis. The results of the research showed that WhatsApp can facilitate quicker and more effective interaction, which improves the flow of data, exchange of thoughts, and interpersonal connections. It was discovered that WhatsApp has an enormously detrimental effect on youngsters and negatively impacts their conduct, schooling, and daily life, especially in higher education institutions.

Many individuals are worried about how individuals can improve their educational outcomes. As a result, school achievement represents a factor that may be predicted, as it additionally influences enrollment in universities and an individual's job readiness potential (Kyoshaba, 2009). Academic achievement, according to Gasaymeh (2017) serves as an example of what we know, comprehend, and are capable of. Academic achievement is also defined by Helou et al. (2016) as the quantitative assessments of learners' thinking, comprehension, plus ideas that show how well-adapted they are to their schooling. Thus, academic achievement is a product of learning or the level that a learner, instructor, or school has met the goals they set for themselves. To know whether this objective is achieved or not is revealed by the academic progress of learners. In spite of the importance of

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academic achievement, the researchers have observed that some business education students in UNICROSS have not performed up to expectations in their examinations and continuous assessments, especially in Vocational Guidance (BED 4107). This is evident in the results published year in, and year out. With regard to assignments given to them, some students prefer copying and pasting assignment solutions from their coursemates to spending time solving them on their own. Others have been caught with suspicious materials during examinations. This has resulted in some students being placed on probation since their Grade Percentage Average (GPA) is lower than one point. Also, most of these students graduate with a second class lower while a very negligible number of them, graduate with a second class upper. These have not only bothered the researchers but also other educational stakeholders. Johnson and George (2014); Mohammad and Sonali (2019) have attributed this poor academic achievement of students to poverty, lack of educational facilities, parental background, lack of motivation, teachers' variables, and low intelligence quotient among others. This is a source of worry to the researchers which has prompted the study on the perceived influence of WhatsApp usage on students' Academic Achievement at the University of Cross River State.

In this ICT-driven era, the researchers assume that students' poor academic achievement may be connected to their frequency of using WhatsApp as an ICT-mediated social media application. Hence, the need for this study to determine whether the WhatsApp application influence students' academic achievement in UNICROSS and what type of influence is it.

### **II. PURPOSE OF THE STUDY**

This study's major goal is to ascertain how WhatsApp usage is believed to influence students' academic achievement at the University of Cross River State. In particular, the study aimed to:

1. Determine students' frequency of using WhatsApp application
2. Find out the influence of students' usage of WhatsApp application on their academic achievement in Vocational Guidance (BED 4107)

### **III. RESEARCH QUESTIONS**

To direct the investigation, a few study questions were put out:

1. What is the students' frequency of WhatsApp application usage?
2. How does students' usage of WhatsApp applications influence their academic achievement in Vocational Guidance (BED 4107)?

### **IV. STATEMENT OF HYPOTHESES**

The following hypotheses were formulated and statistically tested in the study:

1. Students' frequency of WhatsApp application usage is not significantly high
2. Usage of WhatsApp application does not significantly influence students' academic achievement in Vocational Guidance (BED 4107)

Two business educators and one measurement and evaluation expert from the University of Calabar validated this tool.

### **V. METHOD**

This study adopted a survey research design. This is because it sought the opinion of the students on how WhatsApp usage influences their academic achievement. The study utilized purposive and census sampling. Year four business education students offering Vocational Guidance (BED 4107) were purposively sampled to participate in the study. This was done since the approved results of the students were used to measure their academic achievement in the course. The study participants were 258 Year four Business Education recipients of the 2020/2021 academic session (Records from the Office of the Head of Department, 2022). A census of all 258 Year four Business Education students was taken and the 258 were used as participants in the study since the population was small and of a manageable size. The instruments used for garnering data were a validated researchers-made instrument titled "WhatsApp Usage Questionnaire" and approved results of the students in Vocational Guidance. Two business educators from the University of Calabar, along with a measurement and evaluation specialist, validated this tool. The reliability of the instrument was determined after a trial test on twenty (20) respondents at the University of Calabar, Calabar. A reliability index of .81 was achieved for the instrument using Cronbach alpha statistics. The instrument was administered to all the respondents in their institutions and retrieved on the spot. However, only 241 copies were correctly responded to. The data collected was analyzed using a population t-test to test hypothesis one and a one-way analysis of variance was used to test hypothesis two. All the hypotheses were tested at a 0.05 level of significance.

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## VI. RESULT

### Hypothesis one

Students' frequency of WhatsApp application usage is not significantly high

A population t-test was used to test this hypothesis and the result was presented in Table 1.

**Table 1. Population t-test analysis of students' frequency of WhatsApp application usage**

Variable	N	X	SD	t-cal	$\mu$	df	p val.
Frequency of WhatsApp application usage	241	1.78	.626	22.193	2.5	240	.000

The computed t-value of 22.193 from Table 1 is higher than the crucial t-value of 1.968, and its corresponding p-value of .000 with 240 degrees of freedom is found to be less than 0.05 level of significance. The null hypothesis is disproved as a consequence. This implies alternately that students' frequency of WhatsApp application usage is significantly high.

### Hypothesis two

The usage of WhatsApp applications does not significantly influence students' academic achievement in Vocational Guidance (BED 4107).

One-Way Analysis of Variance (ANOVA) was used to test the hypothesis. Table 2 displays the analysis's result.

**Table 2. Summary of One-Way Analysis of Variance of the influence of usage of WhatsApp application on students' academic achievement (n=241)**

Variables	N	X	SD
Everyday	75	2.45	0.868
Once a week	147	2.51	0.813
Once a month	13	2.50	0.688
Yearly	6	2.57	0.976
Total	241	2.49	0.825

Source of variation	Sum of squares	Degree of freedom	Mean square	F-value	p-value
Between Groups	129.3313	43.110	82.43*	.023	
Within Groups	123.887	237	.523		
Total	253.217	240			

\*Significant at  $p < .05$  level,  $df = 3, 237$ ; critical  $F$ -value=3.02

In Table 2, it can be seen that the computed f-value of 82.43 is higher than the crucial value of 3.02. and its associated p-value of .023 is found to be less than 0.05 level of significance with 3 and 237 degrees of freedom. This implies that the usage of WhatsApp applications significantly influences students' academic achievement in Vocational Guidance (BED 4107). The data were put through a Multiple Comparison Test for a Post Hoc Analysis because the outcome was significant, as can be seen in Table 3.

### Table 3

**Table 3. The data were put through a Multiple Comparison Test for a Post Hoc Analysis because the outcome was significant, as can be seen in Table 3.**

(I) Usage of WhatsApp	(J) Usage of WhatsApp	Mean Diff. (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower bound	Upper bound
Every day	Once a week	-24.06863*	4.70651	.000	-27.3231	-20.8142
	Once a month	-45.33529*	7.80358	.000	-50.9516	-39.7190
	Yearly	-30.29814*	5.28672	.000	-41.3951	-38.6003
Once a week	every day	-24.06863*	4.70651	.000	20.8142	27.3231
	Once a month	-21.26667*	7.01542	.000	-27.1016	-15.4317
	Yearly	-20.31120*	8.12109	.000	-26.9610	-20.4912
Once a month	Everyday	-45.33529*	7.80358	.000	39.7190	50.9516
	Once a week	-21.26667*	7.01542	.000	15.4317	27.1016
	Yearly	-20.9526*	7.10831	.000	-25.3100	-20.1738

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Yearly	Everyday	-30.29814*	5.28672	.000	38.6003	41.3951
	Once a week	-20.31120*	8.12109	.000	20.4912	26.9610
	Once a month	-20.9526*	7.10831	.000	20.1738	25.3100

\*Mean difference is significant at  $p < 0.05$

The result in Table 3 shows that there is a significant difference in students' academic achievement who used WhatsApp every day and those who use WhatsApp once a week, in favour of those who used WhatsApp once a week. Similarly, there is a huge disparity in the academic success of learners who used WhatsApp every day and those who use WhatsApp once a month, in favour of those who used WhatsApp once a month. Furthermore, The educational outcomes associated with individuals utilizing WhatsApp every day and those who use WhatsApp yearly, in favour of those who used WhatsApp yearly. In addition, there is a considerable disparity in learning outcomes between learners that utilized WhatsApp once every week compared to those that employed WhatsApp on a monthly basis, with the former outperforming the latter. Also, academic achievement varies greatly among students who used WhatsApp once a week and those who use WhatsApp yearly, in favour of those who used WhatsApp yearly. In conclusion, the scholastic progress of learners that utilized WhatsApp monthly as opposed to those that used it annually differed significantly.

### VII. DISCUSSION

The finding in this aspect reveals that students' frequency of WhatsApp application usage is significantly high. This finding is supported by WhatsApp; Facebook Statista (2018) statement that there are over a billion daily active registered subscribers of the WhatsApp app globally. WhatsApp transmits and receives 55 billion conversations daily. On a typical day, WhatsApp receives around 1 billion films and 4.5 billion photos. All over the globe, WhatsApp is accessible in sixty distinct languages. WhatsApp recently introduced new features including two-factor authentication safety, Live calls via video, and a makeover which has rendered it more inviting for people utilizing it when it initially reached one billion users per month. The outcome of this research is consistent with the finding of Sujit (2018) that WhatsApp had a negative influence on educational outcomes as opposed to facilitating better knowledge exchange among learners by rendering interaction simpler and more quickly. Additionally, WhatsApp consumes a significant amount of learning duration, which contributes to tardiness issues, undermines sentence organization and spelt words, causes learners to lose focus in class, makes it challenging to balance web-based activities like WhatsApp and studying, and prevents youngsters from finishing their homework and sticking to their personal learning schedule. The outcome of this investigation agrees with the finding of Golam (2015) that WhatsApp has a major negative impact on students' capacity to acquire knowledge, act correctly, and maintain life as usual. It interferes with study time and keeps them from doing their schoolwork. According to reports, the application in issue is very addictive. Because of the impact, individuals stop engaging in real-world activities. No one is able to cease talking, responding, or expressing their ideas. This study's finding is supported by Olubiyi's (2012) opinion that teenagers nowadays have become so involved in electronic communication that many of them spend over twenty-four hours on the Internet. Several learners have even been seen to constantly be "pinging," "2going," or "WhatsApping" when lecturers are lecturing. The energy that should be better spent on education, academic research, and innovation is being squandered due to an obsession with making fresh connections via the Internet while spending much of the day chatting about unimportant matters. This is so because, from observation, most students get messages from their friends, family and course mates from the WhatsApp application. They may not entirely use the WhatsApp platform to send and receive relevant academic materials like solutions to assignments, examination question papers or lecture voice notes but may also use it to meet old and make new friends, and send videos, pictures and messages to loved ones.

The finding on the second hypothesis indicates that usage of WhatsApp applications significantly influences students' academic achievement in Vocational Guidance (BED 4107). The finding of this study is supported by Ijeoma and Tusiima's (2017) finding that social media had a detrimental effect on student's academic achievement. Many learners face difficulties with schoolwork as a consequence of internet-based distractions. It is possible to see how the use of English is impacted by how they make use of social assistance websites in both formal and informal interactions. The reason is due to the requirement to employ concise styles of communication whilst messaging on one or more online sites due to a limitation of room along with the need to save money. Many frequently disregard and use identical shorter ways of expression in classes, particularly before examinations, so as to communicate with their pals because they are familiar with the conversational language. They substitute words like "4" for "for," "u" for "you," and "d" for "the," among other things. Any of the above might impact their education. The finding of this study is consistent with Sharma and Shukla (2016) finding that WhatsApp had both positive and negative effects on adolescents. It affects their everyday conduct, attitudes, and learning outcomes. It possesses a potently alluring appeal. The findings showed that youths invest more time using these portable electronics compared to what they do with their loved ones. Notwithstanding the reality

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that chat rooms have become generally accepted as important learning tools; it seems that students are squandering time there just for fun rather than learning. To catch a few old friends or make new acquaintances, individuals spend an extensive amount of their day engaging in online activities. These learners sometimes blame various internet sites for a steady decline in their academic achievements. This suggests that just a tiny portion of learners have knowledge of the possibilities for connections which digital sites offer for both career and learning purposes. The finding of this study agrees with Mohammad and Sonali (2019) finding that WhatsApp may speed up and boost communication, enhancing information flow, intellectual interchange, and relationships. It was found that WhatsApp, specifically among higher learning schools, has a seriously detrimental effect on children's behaviour, academic performance, and everyday interactions. This result is as reported because most students spend valuable time that would have been used to cover book chapters or a whole textbook on WhatsApping. The time that should have been used to solve home assignments or research complex topics not understood in class is rather spent chatting meaninglessly with new acquaintances or going through their friends' statuses and updates.

### VIII. CONCLUSION AND RECOMMENDATIONS

WhatsApp is a new technique that helps online learners in their personal and professional lives. But the results of this research reveal that WhatsApp is an essential tool for University of Cross River State students. This is due to the fact that it has two edges and, if utilized well, can improve the educational attainment of students. It facilitates dialogue and speeds up the exchange of thoughts amongst learners, improving the efficiency with which knowledge flow. Yet when misused, it can have an unfavourable impact on learners' academic achievement. Due to the level of commitment, issues with tardiness, damage to one's language skills, and trouble focusing amid classes, it would consume a significant amount of a learner's study time. Based on the findings of the study, it was recommended that: The school management should have a course on time management taught across all disciplines, as this course would enlighten the students on what they should prioritize; Hence, they would be able to strike on the time spent on WhatsApp for academic purposes and for leisure. Students should be encouraged by their lecturers to use the WhatsApp application for academic purposes. This can be done by the lecturer giving and receiving assignments via the platform; creating a lecture group on the platform, where he/she can forward lecture notes and voice notes for students' utility and sometimes do online presentations of lectures.

### REFERENCES

- 1) Animasahun, R. A. (2015). The effects of social media on the academic performance of Nigerian youths. *The Counsellor*, 34 (2), 73-87.
- 2) Annie, W., Howard, W. S. & Mildred, M. (2013). *Achievement and ability tests-definition of the domain, education measurement*. America: University Press of America.
- 3) Asemah, E. S. & Edegoh, L.O.N. (2012). Social media and insecurity in Nigeria: A critical appraisal. *International Journal of Virtual Communities and Social Networking*, 2(1), 67-79.
- 4) Augustine, S. E. & Nwaizugbu, N. Q. (2018). WhatsApp utilization and academic performance of computer in education trainee teachers in University of Port-Harcourt. *International Journal of Education, Learning and Development*, 6(5), 15-25
- 5) Ben, C. B. (2010). *Vocational education in Nigeria*. Ibadan: El Summer Educational Books
- 6) Bhatt, A. & Arshad, M. (2016). Impact of WhatsApp on youth: A sociological study. *IRA- International Journal of Management and Social Sciences*, 4(2), 376-386.
- 7) Brian, M. & Jan, Y. (2009). *Cutting-edge technologies*. Ongkong: Mega Books
- 8) Etim, P. J., Udosen, I. N. & Ema, I. B. (2016) Utilization of WhatsApp and students' performance in Geography in Uyo Educational Zone, Akwa Ibom State. *International Journal of Innovation and Research in Educational Sciences*, 3 (5), 2349–5219
- 9) Fawzi, H. A. (2015) Usage of WhatsApp application for e-learning and its impact on academic performance in Irbid National University in Jordan. *International Journal of Applied Engineering*, 10 (19), 39875-39879.
- 10) Gasaymeh, A. M. (2017) University students' use of WhatsApp and their perceptions regarding its possible integration into their education. *Global Journal of Computer Science and Technology: G Interdiscipline*, 17(1), 79-90
- 11) Golam, R. S. (2015). Impact of WhatsApp messenger on the university level students: A sociological study. *International Journal of Natural and Social Sciences*, 2(4), 118-125
- 12) Ijeoma, E. & Tusiima, V. S. (2017). Influence of WhatsApp and facebook social media usage on academic performance of secondary school students in Port Harcourt Local Government Area, Rivers State, Nigeria. *IOSR Journal of Humanities And Social Science (IOSR-JHSS)*, 22(12), 07-13.

## Perceived Influence of Whatsapp Usage on Students' Academic Achievement in the University of Cross River State

- 13) Izyani, B. M. & Mohamed, A. E. (2016). Students' perception on the use of WhatsApp as a learning tool in ESL classroom. *Journal of Education and Social Sciences*, 4, 96-109
- 14) Jairus, E. U., Christian, U. U., Ogwuche, A. J., Thomas, O. I., Taiyol, T. T., Ode, E. J., Ekpo, S. O. & Adoga, I. A. (2017). Impact of mobile phone usage on students' academic performance among public secondary schools in Oju local government area of Benue State. *International Journal of Science and Research Methodology (IJSRM)*, 6(3), 104 – 118.
- 15) Johnson, Y. & George, D. E. (2014). The impact of WhatsApp messenger usage on students' performance in tertiary institutions in Ghana. *Journal of Education and Practice*, 2, 102-110
- 16) Kuppuswamy, S. & Shankar, N. P. (2010). The impact of social networking websites on the education of youth. *Journal of Computer-Mediated Communication*, 12(4), 1143-1168.
- 17) Kyoshaba, M. (2009). Factors affecting academic performance of undergraduate students at Uganda Christian University. <https://mak.ac.ug/documents/makfiles/theses/kyoshaba/pdf> Retrieved 20th June 2020
- 18) Metz, C. (2016, April 5). Forget apple vs. the FBI: WhatsApp just switched on encryption for a billion people. <http://wired.com> Retrieved 20th June 2020
- 19) Mohammad, I. & Sonali, D. (2019). Impact of WhatsApp messenger on the university level students: A psychological study. *International Journal of Research and Analytical Reviews (IJRAR)*, 6(1), 572 – 586
- 20) Olubiyi, S. (2012). Social media and Nigeria youth burden. <http://bluepringng.com/2012/12/social-media-and-Nigerian-youth-burden> <https://mak.ac.ug/documents/makfiles/theses/kyoshaba/pdf> Retrieved 20th June 2020
- 21) Rogers, E. M. (1962). Innovation diffusion theory. [https://en.wikipedia.org/wiki/diffusion\\_of\\_innovations](https://en.wikipedia.org/wiki/diffusion_of_innovations) Retrieved 3<sup>rd</sup> June, 2023
- 22) Sharma, A. & Shukla, A. K. (2016). Impact of social messengers especially WhatsApp on youth: A sociological study. *International Journal of Advance Research and Innovative Ideas in Education*, 2(5), 367-375
- 23) Sujit, B. C. (2018). The impact of WhatsApp messenger usage on students' academic achievement. *International Journal of Trend in Scientific Research and Development (IJTSRD)*, 1, 191-196
- 24) Undie, S.B., Ibiang, J.O., Ejue, O.F., Ibiang, O.L., Mfon, E.U. (2023). Learner support services and business education students' readiness for online learning at the University of Calabar, *Prestige Journal of Education* 6 (1), 93-105
- 25) WhatsApp & Facebook Statista (2018). Globally active users of WhatsApp. <http://www.users-of-facebook-&-watsapp/> Retrieved 20th June 2020
- 26) William, O., Boyd, E., Densten, A., Chin, S., Diamond, I. & Morgenthau, N. (2009). Effect of twitter social networking site on the achievement of senior secondary schools in History in Nsukka Local Government Area. *Journal of Communication Studies*, 6(1), 125-145
- 27) Yeboah, J. & Ewur, G.D. (2014). The impact of WhatsApp messenger usage on students' performance in tertiary institutions in Ghana. *Journal of Education and Practice*, 5(6), 157-164



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## The Impact of Entrepreneurial Leadership on Innovation Speed and Quality: The Mediating Role of Strategic Flexibility



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**ABSTRACT:** In a highly dynamic and competitive environment, organizations must continuously and rapidly improve their innovation performance to remain competitive and sustainable in the market. Drawing on principles of the upper echelons theory and dynamic capability view of organization, this study aims to examine the mediating role of strategic flexibility in the relationship between entrepreneurial leadership and innovation speed and quality. Questionnaire was designed to data collection from a quota sample of (283) leaders and managers at branches of the most two huge Egyptian banks represent public and private sectors (NBE and CIB). Data analysis was conducted through a two-stage structural equation modeling technique by AMOS. At the first stage, the measurement model was examined for construct validity and reliability, whereas at the second stage, the structural model was run for testing the research hypotheses. The empirical results show that entrepreneurial leadership and strategic flexibility positively and significantly affect both innovation speed and quality. Furthermore, strategic flexibility partially mediates positively the relationships between entrepreneurial leadership and innovation speed and quality. This research proposes guidelines for managers to help enhance organizational innovation through dynamic and strategic flexibility in emerging economies such as Egypt.

**KEYWORDS:** Entrepreneurial leadership; Innovation; Innovation speed; Innovation quality; Strategic flexibility

### 1. INTRODUCTION

Recently, innovation and innovation-oriented initiatives which are knowledge-based are important factors for organizational success and providing a long-term competitive advantage in a highly turbulent and dynamic environment (Ince et al., 2023). However, in a knowledge-based economy, the role of service organizations depends on innovation speed and quality, and researchers have only recently begun to investigate their antecedents and outcomes. Therefore, it is important to focus on the two most attributes of innovation are quality and speed during strategy set and implementation (Iqbal et al., 2019; Iqbal, 2021).

Recent studies suggest that through their leadership style, managers can either encourage or inhibit employee innovative behaviors (Miao et al., 2018; Zheng et al., 2019). It is therefore important to understand the influences of different leadership styles on innovation activities (Liao et al., 2018). The majority of prior research has focused on examining how traditional leadership styles such as transactional, transformational and charismatic leadership relate to innovation (e.g. Al-Mansoori and Koç, 2019; Naguib and Abou Naem, 2018). Despite the valuable and meaningful findings of previous studies, there is a lack of studies on the associations between entrepreneurial leadership style and successful outcomes of firms, particularly in terms of innovation aspect (Yu et al., 2020).

In this sense, corporate entrepreneurship becomes an important role of inspiration for the happening of innovation (Tseng and Tseng, 2019). Entrepreneurial leadership is a concept arising at the intersection between entrepreneurship and leadership (Cai et al., 2019). It is a relatively emergent paradigm that has been applied to overcome the ever-changing and dynamic nature of current organizations (Bagheri and Harrison, 2020). This type of leadership has received increased attention of both scholars and practitioners due to its importance in improving competitiveness, success and growth of all types of businesses, a public or private organization (Bagheri and Akbari, 2018; Miao et al., 2018).

Despite the growing interest, a definition of entrepreneurial leadership and theory remain underdeveloped, there is no consensus among scholars on the definition and the dimensionality of the construct (Bagheri & Harrison, 2020; Harrison et al., 2018). Thus, further development of entrepreneurial leadership theory requires a precise understanding of the factors that constitute the construct (Leitch and Volery, 2017). There are a small number of studies that empirically examine the

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dimensionality of entrepreneurial leadership based on theoretical foundations and developed a measurement model for it (Fontana and Musa, 2017; Huang et al., 2014; Kim et al., 2017).

A review of the prior studies indicates that researchers mostly use the measures developed by Gupta et al. (2004) to examine the association between this type of leadership and employees' individual and group-level behavior as well as organizational performance (Kim et al., 2017). However, recent research uses Renko et al.'s ENTRELEAD (2015) uni-dimensional scale to examine the impact of entrepreneurial leadership practices on employees' innovative behavior (Bagheri and Harrison, 2020).

Although understanding entrepreneurial leadership is relevant given the desirable individual employee's innovative behavior (e.g. Akbari et al., 2021; Miao et al. 2019), the entrepreneurial leadership- organizational innovation link constitutes a complex phenomenon that remains unsolved and has limited interest in literature (Fontana and Musa, 2017; Yu et al., 2020), thus requiring additional work to be understood. Furthermore, the essential role of entrepreneurial leadership in improving a firm's innovation speed and quality is still empirically unexplored, especially in developing economies (Egypt).

On the other side, firms, especially Egyptian banks, operating in dynamic business environments where political instability, high level of market complexity, financial ambiguity, and risk dominate the whole market, must develop dynamic capabilities to gain competitive advantage (Herhausen et al., 2021). Among these capabilities, strategic flexibility enables firms to dynamically manage their resources for adapting to high-velocity environments and reducing risks, and it also helps firms exploit the full potential of their key resource stocks. Strategic flexibility allows firms to respond quickly to unstable environments and act promptly when it is time to halt or reverse existing resource commitments (Kamasak et al., 2017). While, little and scarce attention has been paid to the underlying organizational mechanism of entrepreneurial leadership-innovation relationship, and there is limited empirical evidence of mediating role of strategic flexibility in the relationships between entrepreneurial leadership and organizational outcomes (Hensellek et al., 2023; Yu et al., 2020).

To narrow these research gaps, this study first develops a theoretical framework depicting the mediating role of strategic flexibility in the relationships between entrepreneurial leadership and both innovation speed and quality, and then empirically tests the hypotheses using survey data collected from public and private commercial banks in Egypt. In this sense, we claim that when the external environment is in continuous turbulence, Egyptian entrepreneurial leaders in banks need to develop greater flexibility which help in guiding the business through an unpredictably changing environment and helps the banks to reallocate resources and break down existing operating routines, may leading to faster (speed) and better (quality) innovation activities.

## **2. THEORETICAL BACKGROUND**

### **2.1 Entrepreneurial leadership**

The definition of corporate entrepreneurship has evolved over the past couple of decades. Some researchers define corporate entrepreneurship as a broad concept, while others define it as a narrower concept of innovation.

Kuratko (2009) debates that most researchers view corporate entrepreneurship as a term that "refers to entrepreneurial activities which receive organizational sanction and resource commitments for the purpose of innovation results". It is provided a key definition of corporate entrepreneurship, characterizing as formal or informal activities aimed at creating new businesses in established companies through product and process innovations and market developments (Vanacker et al., 2017).

According to Coglisier and Brigham (2004), the integration between leadership and entrepreneurship result in entrepreneurial leadership style, that received considerable attention in the management literature (e.g. Leitch and Volery 2017; Renko et al., 2015). Thus, entrepreneurial leadership combines together the notions of entrepreneurship and leadership, by highlighting opportunity exploration and exploitation as organizational goals, and mobilizing followers to adapt in the disrupted environment (Cai et al., 2019).

Emphasizing the challenge of mobilizing the resources and gaining the commitment required for value creation, Gupta et al. (2004, p.242) defined entrepreneurial leadership as "leadership that creates visionary scenarios that are used to assemble and mobilize a 'supporting cast' of participants who become committed by the vision to the discovery and exploitation of strategic value creation" (Bagheri & Harrison, 2020).

Furthermore, entrepreneurial leadership is defined as influencing and directing the performance of group members toward the achievement of organizational goals that involve recognizing and exploiting entrepreneurial opportunities (Cai et al., 2019, p.204; Renko et al. 2015, p. 55).

In the same vein, entrepreneurial leadership is about "influencing others toward a goal through effective communication to recognize opportunity and share a vision about future possibilities that organizations could exploit to sustain competitiveness" (Fontana and Musa, 2017, p.5).

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According to the variety of perspectives adopted and definitions offered, scholars claimed that entrepreneurial leadership remains theoretical and lacks definitional clarity and appropriate tools to assess its characteristics and behaviors in the field (Harrison et al., 2015; Leitch and Volery, 2017).

Despite the growing interest, a definition of entrepreneurial leadership and theory remain underdeveloped, on the one side, there is no agreement among scholars on the definition of the concept (Leitch and Volery, 2017). While some scholars define entrepreneurial leadership based on the distinctive attributes and qualities of the leader, others focus on their specific leadership behavior and skills (Harrison et al., 2018; Bagheri & Harrison, 2020).

On the other side, there is no consensus among scholars on the dimensionality of the entrepreneurial leadership construct. While, the majority of scholars recognize entrepreneurial leadership as a multi-dimensional construct (Fontana and Musa, 2017; Gupta et al., 2004; Huang et al., 2014; Kim et al., 2017), empirical studies mostly conducted using a onedimensional measure (Bagheri and Akbari, 2018; Cai et al., 2018; Miao et al., 2018; Newman et al., 2018).

From the most common unidimensional perspective of entrepreneurial leadership, Renko et al. (2015) measured entrepreneurial leadership in eight items, applying it to students and young workers concerning the relationship of entrepreneurial leadership with entrepreneurial orientation, transformational leadership, and innovation-supportive leadership. However, this operationalization does not take into consideration how employees perceive the opportunistic capabilities of their leaders. The dominant framework of Gupta et al. (2004) of entrepreneurial leadership put forward five dimensions of entrepreneurial leadership, discovering its global and cross-cultural nature, these dimensions are framing the challenge, absorbing uncertainty, path clearing, building commitment, and specifying limits.

In a close operationalization to the Gupta et al. (2004) dimensions, Huang et al. (2014) developed a five-component entrepreneurial leadership measure included challenge formulation, uncertainty internalization, underwriting, commitment building, and defining gravity (Kim et al., 2017; Yu et al., 2020).

It is argued that the first three dimensions (Framing the challenge, Absorbing uncertainty, and Path clearing) relate to leader's ability to identify possible opportunities that can be seize. While the last two roles (Building commitment and defining gravity) relate to leader's ability to manage resources and inspire followers to exploit the opportunities to achieve organizational goals (Mehmood et al., 2021).

To sum up, empirical testing and development of appropriate measures for entrepreneurial leadership concept are scarce (Bagheri and Harrison, 2020). Therefore, this study focuses on understanding how entrepreneurial leaders influence entrepreneurial behavior of followers and direct the entrepreneurial processes of their business are limited in literature. Further advancement of entrepreneurial leadership theory requires a precise identifying of the factors that constitute the construct (Gupta et al., 2004; Leitch and Volery, 2017).

### **2.2 Innovation speed and quality**

Innovation has been the subject of extensive research; it is a broad topic of research, and increasingly different types of innovation are identified, as well as different stages of the innovation process and various levels of analysis (Mendoza-Silva, 2021).

According to Drucker (2014), innovation is defined as a creation of new products and services and application of new processes and management techniques, which enable organizations to create value and gain competitive advantage (Bhatti et al., 2020).

Instead of a single description of innovation, Rogers (1998) argued that there are five types of innovation: (1) introduction of a new product or a qualitative change in an existing product; (2) process innovations that are new to an industry; (3) the opening of a new market; (4) the development of new sources of supply for raw materials or other inputs, and (5) changes in industrial organization (Tseng and Tseng, 2019).

Thus, innovation is a complex and multidimensional concept that encompasses a separate but interrelated set of innovative processes. It is a concept that goes beyond technological innovation to include service innovation or business models (Apak et al., 2021). Others adopt a broad concept of innovation focuses on four dimensions: product innovation, process innovation, marketing innovation, and organizational innovation (Laeque and Babar, 2017; Migdadi, 2020).

Differently, this research focuses on the two prominent innovation performance capabilities in literature, namely innovation speed and quality. Prior studies argument concentrated on innovation as a knowledge-driven result affected by firms' strategic choice, behavior characteristics, and technology implementation. In complex and rapidly changing environments, speed and quality, which are the two main characteristics of innovation, have been indicated to affect firm performance (Wang et al., 2021).

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Consequently, the faster and better a firm can innovate, the more likely it will meet the needs of the market and fulfill business goals (Tseng and Wu, 2007). Thus, these two characteristics are most appropriate innovation that assesses ability of the organization to accelerate activities and build a competitive advantage on the one side; and on the other side innovation quality represents the effectiveness of innovation processes and their ultimate end (Iqbal, 2021).

Innovation speed refers to an organization's ability to reduce the time required to product or processes development and marketing compared to its competitors. Therefore, innovation speed is seen as a team-based efficiency that enables an organization to respond quickly to customer demands, gain a high market share and profits (Wang et al., 2021).

In the same mean, Innovation speed can be defined by the time elapsed between initial conception/definition of an innovation and the ultimate commercialization of new products, services, and related activities, building a competitive advantage relative to competitors with shortened product life cycles (Mardani et al., 2018).

Accordingly, the current research adopts the definition of innovation speed as "the rate at which innovation proceeds from idea generation to ultimate commercialization and an organization's capability to accelerate the creation of new processes or products as compared to its competitors within the industry with shortcomings product life cycle" (Iqbal et al., 2018).

On the other hand, innovation quality relates to the effectiveness of innovation processes and their end results, and is described as the extent to which an organization can add value to its products or services in terms of their features, cost, reliability, and flexibility (Wang et al., 2021). This characteristic helps organizations to perform better compared to their competitors by improving quality management and increasing responsiveness (Iqbal, 2021).

Although the quality of innovation is one of the most important factors for a firm implementing an innovation strategy to compete in the market, its identification may face more challenges due to the increasing complexity and difficulty of measurement (Mardani et al., 2018).

### **2.3 Strategic Flexibility**

Due to rapidly and increasing environmental changes, an organization ought to be more flexible, which leads to strategic flexibility become a hot research topic in management literature. Strategic flexibility refers to a firm's abilities to reallocate and reconfigure its organizational resources and processes to cope with environmental changes. It has been recognized as a source of competitive advantage (Su, 2022).

Strategic flexibility is defined as "the organization's ability to deal with ambiguities, uncertainties, and changes in the business environment, which is known as reengineering and restructuring (Hamokhalil and Alshikh, 2019).

Accordingly, strategic flexibility represents the ability of organizations to respond quickly to opportunities and changes in the environment (Brinckmann et al., 2019). Thus, the main strategic element of flexibility is the organization's ability to absorb and adapt to the changes occur in internal and external environment (Shalender and Yadav, 2019; Wang et al., 2019).

From the side of a proactive ability, Grewal and Tansuhaj (2001) define strategic flexibility as "the organization's ability to respond proactively or reactively to business opportunities and threats posed by changes in the economic and political environments" (Herhausen et al., 2021). While, from a reactive ability perspective, it is defined as "a company's ability to respond quickly to problems, rethink its activities and strategies, and better meet environmental requirements" ((Brozovic, 2018; Escrig Tena et al., 2011).

As the ability of a firm to reallocate and reconfigure its resource base, strategic flexibility is an important resource-related factor that significantly influences the firm's strategic decision (Zhou and Wu, 2010). In this sense, strategic flexibility is a capability to identify major changes in the external environment, to quickly commit resources to new courses of action in response to change, and to recognize and act promptly when it is time to reverse such resource commitments (Katsuhiko and Hitt, 2004, cited by Yang et al., 2020).

Regarding to operationalization of strategic flexibility, many studies adopted Sanchez's (1995) theoretical work, which focuses on the flexible allocation and coordination of resources in response to changing environments (e.g. Chen et al., 2017).

From different perspective, strategic flexibility is measured via strategic planning, using a three-item scale; the items are the evaluation and review of strategic plans; adjustments of strategic plans to changing environments; and strategic planning as continuous process (Brozovic, 2018). Strategy scholars, including Guo and Cao (2014) and Zahra et al. (2008), define SF as a firm's strategic capability to reallocate and reconfigure its organizational resources, processes, and strategies to respond quickly to opportunities, threats, and changes in the external market environment that meaningfully impact firm performance (Hensellek et al., 2023).

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Therefore, strategic flexibility is related to long-term organizational objectives and, in its most radical manifestation, requires significant qualitative changes within the organization. More specifically, strategic flexibility enables the development of strategic options that can either react or lead to the change (Shalender and Yadav, 2019).

In general, the positive strategic flexibility–performance relationship is stronger when strategic flexibility is measured in terms of proactively creating new opportunities, internal resource deployment and external competitive actions, compared to when it is not. While, measuring strategic flexibility in terms of reactivity (responding to change), variety (increasing options) and speed (timely response) does not affect the strategic flexibility–performance relationship. Furthermore it is found that the performance effect of strategic flexibility is stronger when performance is measured in terms of innovation outcomes rather than financial outcomes (Herhausen et al., 2021).

The current study adopts a proactive perspective to operationalize strategic flexibility by (1) building excess resources by hedging and sharing investments across business activities; (2) emphasis on firms deriving benefits from diversity in the environment; (3) importance that the firm puts on benefiting from opportunities that arise from variability in the environment; (4) a firm’s strategic emphasis on managing macro-environmental risk (political, economic and financial risk); and (5) the flexible allocation of human resources (Brozovic, 2018; Herhausen et al., 2021; Nadkarni and Herrmann, 2010; Xiu et al., 2017).

### **3. HYPOTHESES DEVELOPMENT**

#### **3.1 Entrepreneurial leadership and innovation speed and quality**

The direct relationship between entrepreneurial leadership and work outcomes of employees and teams has been confirmed in previous studies (Bagheri, 2017; Cai et al., 2019). For example, Yang et al. (2019) demonstrate a positive relationship between entrepreneurial leadership and turnover intention of employees under the condition of person-job fit. Also, on the multilevel analysis, Miao et al. (2019) conclude that CEO’s entrepreneurial leadership can enhance both team- and individual-level job performances in the top management level.

Although scholars have investigated the influence of leaders on innovative work outcomes in organizations (Hughes et al., 2018; Zheng et al., 2019), research to date has focused primarily on these well-researched leadership styles developed in the 1980s and 1990s, such as transactional, transformational and charismatic leadership (e.g. Al-Mansoori and Koç, 2019; Naguib, and Abou Naem, 2018).

One stream of research has recognized the significant role of leadership as catalyst for employee innovative performance (Hughes et al., 2018) according to its ability to shape work environment and control over resource allocation (Lee et al., 2020). This line of research has widely focused on transformational leadership (e.g. Afsar and Masood, 2018; Amankwaa et al., 2019), authentic leadership (Grošelj et al., 2020; Yamak & Eyupoglu, 2021), ethical leadership (Shafique et al., 2020) and more recently on servant leadership (Alikhani and Shahriari, 2022; Wang et al., 2019). However, the mixed findings of these leadership styles effects on innovation suggest a more specific and effective leadership style to support innovation that serves opportunity exploration and exploitation to cope with the challenges of complex and dynamic business environment and achieve competitive advantage through innovation i.e. entrepreneurial leadership.

On the other hand, many entrepreneurial leadership studies have recently focused on its impact on individual and group creativity and well been empirically examined in the literature at different settings (e.g. Cai et al., 2019; Wibowo and Saptono, 2018). However, the relationship between entrepreneurial leadership and innovation is still ambiguous (Aslam and Maitlo, 2019; Ince et al., 2023). Thus, it is important to understand the multidimensions of entrepreneurial leadership that lead to innovative outcomes.

Among these relevant studies, Fontana and Musa (2017) verified the impact of entrepreneurial leadership in enhancing all elements in the innovation process (i.e. idea generation, idea selection and development or idea conversion and idea diffusion). Consistently, innovation was considered as a limited concept encompasses employee innovative behavior which focusing on innovation associated with and driven by employees in an organization at the individual level (Zheng et al., 2019).

Furthermore, Newman et al. (2018) argue that increased entrepreneurial leadership results in high levels of IWB of employees. Similarly, Akbari et al. (2021) show that entrepreneurial leadership has a significant and positive impact on IWB of employees in ICT SMEs as well. Despite, the effectiveness of entrepreneurial leadership has drawn scholarly attention in recent years (e.g. Ahmed and Harrison, 2022), empirical evidence on the association between entrepreneurial leadership and innovative behavior is limited (Hoang et al., 2022; Kimbu et al., 2021).

Although there are affirmations that entrepreneurial leaders achieve their vision through recognizing and eliciting the potential capabilities of individuals and groups of employees and influencing them to generate new ideas and regulating their attitudes, thoughts, and behavior to implement the new ideas (Akbari et al., 2021; Hoang et al., 2022; Li et al., 2020; Mehmood

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et al., 2020), however, these were conducted on individual and group levels of investigation, while examining relationship at the macro organizational level is still empirically limited in the literature (Aslam and Maitlo, 2019; Paudel, 2019). Thus, few studies have explored the effects of leadership style on the innovation process and innovation performance of the business, while research on the impact of entrepreneurial leadership on organizational innovation is scarce (Al-Sharif et al., 2023; Aslam and Maitlo, 2019; Ince et al., 2023; Yu et al., 2020).

Scholars have constantly recognized entrepreneurial leadership as a peoplecentric leadership style (Newman et al., 2018) and emphasized its importance in added-value creation by encouraging followers to explore and exploit entrepreneurial opportunities (Renko, 2018), and motivating employees to engage in creative activities (Cai et al., 2019; Wibowo and Saptono, 2018). In addition, compared to other traditional styles of leadership, entrepreneurial leadership has been indicated to strongly connect with employee innovative behavior (Lee et al., 2020; Malibari and Bajaba, 2022) and organizational innovation performance in management research (Yu et al., 2020).

To the best of our knowledge, research on the impact of entrepreneurial leadership on innovation behavior and performance has been mostly conducted in the U.S., Europe and Asia-pacific countries having different procedures to influence new idea generation and implementation (Aslam and Maitlo, 2019; Iqbal et al., 2022; Mehmood et al., 2019; Ince et al., 2023). However, there is also no formally published work on the impact of entrepreneurial leadership on innovation speed and quality in developing African countries. In order to narrow this gap, this study is conducted to understand the impact of banks leaders' entrepreneurial leadership practices on innovation speed and quality in Egypt. The findings of this study highly contribute to the few studies on entrepreneurial leadership-innovation link in developing countries context, specifically in Egyptian banking sector.

Drawing on social learning theory (Bandura, 1977), it is suggested that individuals learn by observing and emulating others' attitudes and behaviors. Accordingly, leaders are a prominent source of role modeling due to their managerial position in the organization and their ability to utilize organizational resources such as rewards to foster desirable behaviors.

Therefore, entrepreneurial leaders foster followers' innovative behavior at workplace. Entrepreneurial leaders not only themselves engage in recognizing and exploiting opportunities but also emphasize the importance of such behaviors and thus act as role models and encourage followers to exhibit innovation and creativity in their work activities (Iqbal et al., 2022; Khan, 2022; Miao et al., 2018; Newman et al., 2018). This in turn on one hand, may enable the organization to respond quickly to customer demands, gain a high market share, and generate more profits, supporting organization's ability to reduce the time required to product or processes development and marketing compared to its competitors; and on the other hand, may support the effectiveness of innovation processes in the organization, adding value to its products or services in terms of their features, cost, reliability, and flexibility. Based on this discussion, the first two hypotheses are proposed as:

Hypothesis 1: Entrepreneurial leadership positively affects innovation speed.

Hypothesis 2: Entrepreneurial leadership positively affects innovation quality

### **3.2 Entrepreneurial leadership and strategic flexibility**

From the dynamic capability view of the firm, it is explored how firms build, integrate and reconfigure valuable asset positions. The firm's asset base in the broadest sense includes labor, capital, technology, knowledge, and property rights, and also the structures, routines and processes that are needed to support its productive activities (i.e. organizational structures and capabilities), thus, these dynamic capabilities denote the firm's ability to sense and seize opportunities, and reflect the entrepreneurial facet of management (Buccieri et al., 2021).

Scholars in strategy field defined strategic flexibility as a firm's strategic capability to reallocate and reconfigure its organizational resources, processes, and strategies to respond quickly to opportunities, threats, and changes in the external market environment that meaningfully impact firm performance (e.g. Zahra et al., 2008). Thus, strategic flexibility reflects a firm's ability to respond quickly "to unexpected consequences of predictable changes" i.e. strategic flexibility (Hensellek et al., 2023). Entrepreneurial organizations are described as agile, responsive, flexible, and embrace to change, consisting with the concept of strategic flexibility, which aims to measure organizations' intentions towards resource flexibility and coordination flexibility (Ali et al., 2021).

Some scholars have studied strategic flexibility in the field of entrepreneurship, examining its relationship with entrepreneurial orientation, such as Arif (2019) who defined the role of the entrepreneurial trend (creativity, risk-taking, and seizing opportunities) in achieving strategic flexibility (market, production, and human resources) in the Egyptian pharmaceutical sector. And in the Jordanian commercial banks context, it has been showed that the high level of availability of entrepreneurial orientation reaches to a high degree of strategic flexibility (AlHalaseh and Ayoub, 2021). While, there is evidence supports the

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joint positive effect of both strategic flexibility and governmental institutional environment for entrepreneurship interactively on entrepreneurial orientation in Chinese firms, whereas the joint effect of societal institutional environment for entrepreneurship and strategic flexibility is negative on entrepreneurial orientation (Su, 2022).

In more relevant studies, it is verified the closed relationship between entrepreneurial leadership and strategic flexibility, among these studies Fernández-Pérez et al. (2016) confirmed the positive impact of large networks of leaders (CEOs) on strategic flexibility, and that entrepreneurial decisionmaking (entrepreneurial strategic schemes and self-efficacy to recognize opportunities) mediates the effect of external social networks characteristics on strategic flexibility and organizational performance.

Moreover, entrepreneurship activities including innovativeness, risk taking and proactiveness significantly influenced strategic flexibility, specifically proactiveness was found to have the greatest influence, and furthermore strategic flexibility was investigated to have an important role in strengthening the effect of an entrepreneurial orientation on SMEs performance in fashion context in Malang (Kharisma et al., 2020).

Drawing on the upper echelons theory, Hensellek et al. (2023) revealed that strategic flexibility is an important strategic capability positively mediates the link between entrepreneurial leadership and venture performance. Among results via the German Startup Monitor data, entrepreneurial leadership was significantly and positively related to strategic flexibility.

Although scholars have shown the importance of entrepreneurial leadership for organizational outcomes in different environments, the exact mechanisms (i.e. strategic flexibility) and organizational context in the leadership–performance relationship are largely unknown (Huang et al., 2014; Renko et al., 2015). This research gap are particularly notable because many previous studies have not employed existing organizational theories such as upper echelons theory as an underpinning lens to investigate the effects of entrepreneurial leadership, in terms of characteristics and actions of a firm’s top executives, on organizational outcomes, thus neglecting important elements or mechanisms (Miao et al., 2019).

Consequently, this research proposes that entrepreneurial leadership behaviors affect the strategic dynamic capability (i.e. strategic flexibility) of the banks for two reasons. Firstly, entrepreneurial leaders can influence their followers by acting as entrepreneurial role models, thereby fostering entrepreneurial behavior among their followers (Miao et al., 2019); specifically, leaders can set an example by recognizing entrepreneurial opportunities in terms of new or improved ideas for products and services, and by exploiting them through the creative use of the resources at hand.

Secondly, entrepreneurial leaders tend to explore new approaches to entrepreneurial challenges rather than adhering to existing procedures for too long (Tece, 2012). This kind of thinking outside the box is transferred to their followers, which can lead to more flexible decisions in entrepreneurial organizations (Hensellek et al., 2023). Based on these arguments, I claim that entrepreneurial leadership behaviors impact their entrepreneurial banks’ strategic flexibility because of their role modeling and active guidance for employees (Bingham et al., 2019; Renko, 2017). Drawing on this, the third hypothesis is proposed as follows: Hypothesis 3: Entrepreneurial leadership positively affects strategic flexibility.

### **3.3 Strategic flexibility and Innovation speed and quality**

Organizations should regularly provide new products and quick processes. Without flexibility, the core resources and capabilities are vulnerable to risk, as strategic flexibility leads to superior performance (Herhausen et al., 2021). Thus, strategic flexibility is imperative for firms to overcome organizational inertia, break down organizational routines and sustain their explorative innovations (Wang et al., 2019; Zhou and Wu, 2010); Because of emphasizing the flexible use of resources and reconfiguration of processes, strategic flexibility reflects one type of dynamic capability that enables firms to achieve a competitive advantage in turbulent markets (Su, 2022).

According to the flexible use of resources and reconfiguration of processes, strategic flexibility in this sense enables firms to respond quickly to dynamic and unstable environmental changes by committing resources to new courses of action, and recognize and act promptly when it is time to halt or reverse existing resource commitments (Liu et al. 2013). In addition, strategic flexibility does not only allow firms to manage dynamically their resources for adapting to high-turbulent environments, but it can also enable firms to achieve the full potential of their key resources (Kamasak et al., 2017).

In search of the closed relationship between strategic flexibility and organizational innovation, Zhou and Wu (2010) indicated that strategic flexibility helps leverage technological capability to develop exploratory innovation. Li et al. (2020) found that strategic flexibility is positively related to radical innovation. In the education context, Ghorban and Gholipour (2018) showed that strategic flexibility has the greatest impact on manufacturing innovation and has the least impact on process innovation. In the same vein, it is confirmed that strategic flexibility has an important role in enhancing product innovation, particularly; marketing flexibility has a key role in product innovation (Beraha et al., 2018).

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In a Meta-Analysis study of Herhausen et al. (2021) summarized variety of theoretical perspectives advocating strategic flexibility, from the dynamic capabilities perspective it emphasizes the flexible use of resources and the reconfiguration of process, thus, affecting innovation, market and financial performance. In a more recent contribution, Mohammed et al. (2022) determined how strategic flexibility deals with innovation performance, identifying the relationship between explorative and exploitative innovation performance and bring out their positive relationships with strategic flexibility. Importantly, strategic flexibility can provide a potential base for benefiting a firm innovation. Strategic flexibility can help firms establish an open organizational structure, which has been identified as a driver of organizational innovation (Kamasak et al., 2017; Mohammed et al., 2022).

In this context, as Egyptian banks need more innovative and valuable products and services for their markets, strategic flexibility is mostly adapted concerning uncertainty and outweighs the gains from standardized or consistent strategy. By definition of strategic flexibility as firm's capability to respond quickly in order to change competitive conditions (Herhausen and Morgan, 2014), this capability is also about seek to support innovation implementation through coherent structure, resources, and processes (Kharisma et al., 2020). Furthermore, the positive strategic flexibility– performance relationship is stronger when strategic flexibility is measured in terms of proactively creating new opportunities, internal resource deployment and external competitive actions, compared to when it is not. It is also found that the performance effect of strategic flexibility is stronger when performance is measured in terms of innovation outcomes rather than financial outcomes (Herhausen et al., 2021).

Consequently, this evidence aligns with the literature that strategic flexibility can enable the organization to respond quickly (i.e. speed) to customer demands, gain a high market share, and generate more profits, by supporting organization's ability to reduce the time required to product/services or processes development and marketing compared to its competitors (Kamasak et al., 2017; Kharisma et al., 2020; Liu et al. 2013). In addition, strategic flexibility is suggested to facilitate an organization's response to environmental changes, leading to better innovation performance and support the effectiveness (i.e. quality) of innovation processes (Herhausen et al., 2021; De la Gala-Vela'squez et al., 2023). Therefore, based on these arguments, the following hypotheses are proposed:

Hypothesis 4: Strategic flexibility positively affects innovation speed.

Hypothesis 5: Strategic flexibility positively affects innovation quality.

### **3.4 The mediating role of strategic flexibility**

Extant studies have investigated the role of strategic flexibility in entrepreneurship context. For instance, Yousaf and Majid (2018) found that entrepreneurial orientation (EO) positively moderates the relationship of strategic flexibility to strategic business performance. Meanwhile strategic flexibility mediated EO effect on fashion SMEs performance (Kharisma et al., 2020). Furthermore, managers in the upper and middle management at the Jordanian commercial banks reported a high degree of strategic flexibility at their banks, and strategic flexibility plays a partial mediating role between EO (with all its dimensions) and organizational excellence (AlHalaseh and Ayoub, 2021).

In another stream of research, entrepreneurial Leadership is investigated to affect indirectly on organizational and innovation outcomes via various mediators. As, innovative environment has been suggested as a significant mediator in entrepreneurial leadership and employees' innovative behaviors relationship (Li et al., 2020). In Kuwait, entrepreneurial Leadership indirectly affects organizational performance through innovation capacity (Sawaeen and Ali, 2020). Utilizing social cognitive theory, Malibari and Bajaba (2022) confirmed the significant impact of entrepreneurial leadership on employees' innovative behavior through the innovation climate and intellectual agility. Al-Sharif et al. (2023) emphasized entrepreneurial Leadership's innovation effectiveness and the triggering process of innovation capability and provided various solutions for firms to demonstrate leadership and innovation practices in responding to uncertain environments. The empirical analysis revealed that entrepreneurial leadership impacted innovation performance directly and indirectly through the mediating role of innovation capability.

Although strategic flexibility is relatively interested in other types of leadership such as distributed leadership (Liao et al., 2018) and agile leadership (Fachrunnisa et al., 2020) and ambidextrous leadership (Jia et al., 2022), there are few studies have tested the role played by strategic flexibility in entrepreneurial leadership effects (Hensellek et al., 2023; Nguyen et al., 2021; Yu et al., 2020). Drawing on the upper echelons theory (Hambrick and Mason, 1984), organizational outcomes reflect the characteristics and actions of a firm's top executives. Thus, it highlights both strategy and structure as important elements to explain how top executives' entrepreneurial behaviors affect organizational performance (Neely et al., 2020) in terms of its innovation aspect. Herhausen et al. (2021) propose a meta-analytic research framework and found that strategic flexibility mediates -along with the environment moderation- the performance effect. Inspired by Herhausen et al. (2021)' research and



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according to the upper echelons theory, Hensellek et al. (2023) examined how this strategic capability (flexibility) influences the relationship between founders’ entrepreneurial leadership behavior and venture performance. Results showed that strategic flexibility fully mediates the entrepreneurial leadership–performance relationship.

However, strategic flexibility may not affect a firm’s innovation output by itself. Rather, it may enhance the value of existing technological capabilities in innovations. In this sense, strategic flexibility is one type of complementary organizational capability that can help the firm achieve the full potential of its key resources when used in combination. Thus, the moderated role of strategic flexibility is supported and enhanced the positive effect of technological capability on exploration innovation (Zhou and Wu, 2010).

This study expects that the relationship between entrepreneurial leadership and innovation speed and quality are mediated by strategic flexibility, due to the rapidly changing environments in banking industry characterized by changes in customer needs, technologies, and regulatory demands, thus, banks have to constantly adjust their strategies “to quickly and purposefully respond to competitive opportunities and threats” to survive, i.e., strategic flexibility (Brinckmann et al., 2019; Hensellek et al., 2023). Furthermore, there are limited empirical efforts on strategic flexibility as mediating mechanism in the relationship between entrepreneurial leadership and innovation performance (Hensellek et al., 2023; Nguyen et al., 2021; Yu et al., 2020). Therefore the following hypotheses are proposed:

Hypothesis 6: Strategic flexibility mediates the relationship between entrepreneurial leadership and innovation speed.

Hypothesis 7: Strategic flexibility mediates the relationship between entrepreneurial leadership and innovation quality.

A conceptual model (Figure 1) is presented to describe the proposed hypotheses.

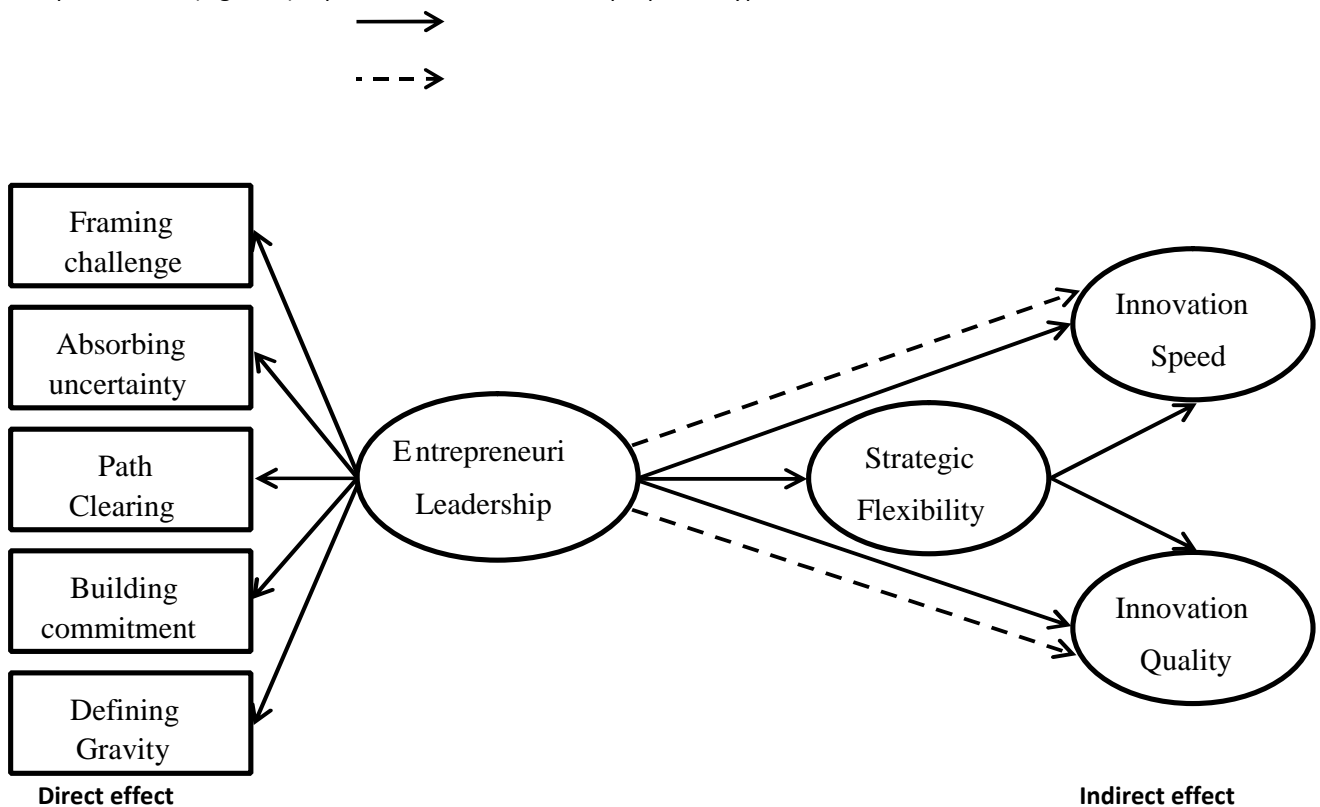


Figure 1. Conceptual model

## 4. RESEARCH METHODOLOGY

### 4.1 Measurement

To achieve the research objectives and test the above hypotheses, multi item scales from prior studies were adopted for the measurement of the research constructs, using a five-point Likert scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5) (see Appendix for the survey items).

Entrepreneurial leadership. Entrepreneurial leadership is operationalized as five dimensions were measured using the 26-items scale, including Framing challenge (5 items), Absorbing uncertainty (5 items), Path clearing (5 items), Building commitment (5 items), and Defining gravity (6 items). They are adopted from many relevant empirical studies (e.g. Huang et al., 2014; Yu et al.,

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2020; Simić et al., 2020; Bagheri and Harrison, 2020; Kim et al., 2017; Gupta et al., 2004). A sample of the items is “Set high standards of performance” and “Integrates followers into cohesiveness, working as a whole”.

Innovation speed and quality. Following studies of (Iqbal, 2021; Iqbal et al., 2020; Mardani et al., 2018; Wang et al., 2018), innovation speed and quality are operationalized and measured by ten items distributed in five items for both. A sample of the items is “Our organization is quick in coming up with novel ideas as compared to key competitors” and “Our organization does better in processes improving as compared to key competitors”.

Strategic flexibility. To evaluate strategic flexibility, a Five-item scale was used according to relevant empirical studies such as (Grewal and Tansuhaj, 2001; Hensellek et al., 2023; Nadkarni and Herrmann, 2010; Xiu et al., 2017; Yu et al., 2020). A sample of the items is “We frequently reconfigure resources to obtain benefits from environmental changes” and “We emphasize the flexibility of exploring and exploiting business opportunities”.

### 4.2 Sampling and data collection

Quota non-probability sampling method was used in order to confirm fair representation to population of leaders and managers at branches of the most two huge banks represent public and private sectors (National Bank of Egypt NBE and Commercial International Bank-CIB) located in Cairo, the capital, which is the center of the Egyptian economy for the service organizations and other sectors. Quota sampling is one of the most important methods of purposive sampling that combines advantages of accuracy to represent population units and ease of implementation (Sekaran and Bougie, 2016). In Egypt, 38 commercial banks include a network of 4,640 branches, with 130,385 employees work in, according to the latest public statistics. These banks are segmented to public (10 banks), private and foreign (22 banks), and only six joint investment (Central Bank of Egypt, 2022: 95).

Questionnaire survey method has been used for data collection. Given the nature of the constructs and our information needs, it was decided that the informants from top-level CEOs in their respective areas (e.g. department managers, senior staff) would be the most appropriate key informant to provide the information sought. Questionnaires were distributed among leaders and managers at branches of the target banks in Cairo. A total of 400 questionnaires were distributed 280 (70%) to NBE and 120 (30%) to CIB branches- relative to percentage of owned branches- and 296 items were returned from all, 194 from NBE and 102 from CIB branches. Of these, 13 questionnaires were discarded due to lack of complete and appropriate answers, and finally 283 questionnaires were used for the final analysis (70.75% response rate). Data analysis was completed through a two-stage structural equation modeling technique by AMOS. At the first stage, the measurement model was examined for construct validity and reliability, whereas at the second stage, the structural model and by implication the research hypotheses were tested (Hair et al., 2011). Brief sample information (sex, age, education and work experience) is showed in Table 2.

**Table 2. Sample characteristics**

Characteristic	Number	Percentage
sex		
Male	153	54 %
Female	130	46 %
Age		
30-40 years	72	25%
41-50 years	110	39%
Above 50 years	101	36%
Education		
Bachelor’s degree	160	57%
Master’s degree	99	35%
Doctorate	24	8%
Work experience		
Below 5 year	90	32%
5-10 years	98	35%
Above 10 years	95	33%

As stated in the table2. Most of the respondents (54%) were males compared to females (46%). The more of respondents (39%) were those age is between (41-50) years old, followed by the oldest employees those ages are above 50 years, while the

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youngsters (30-40 years) represent one fourth (25%) the participants. Respondents are well educated- (57%) have a bachelor's degree, and about (35%) have a master's degree, while those have doctorate are about (8%) only. The work experience level of respondents varied and relatively equalized in terms of respondents number where each category represents one third (33%) of respondents.

## 4.3 Common method bias

According to Podsakoff et al. (2003), due to the data was collected from a single source, common method bias may affect the relationships between the constructs. Thus, the common method bias is a potential threat to the validity of the study (Ince et al., 2023).

Therefore, it is important to assess common method bias and check for the existence of the systematic error variance through using the Harman's onefactor method to determine whether a single-factor model with all the measurement items accounts for the majority of the variance. First factor accounted for only 36.17% of the total variance (less than 50%), referring no serious common method problem. Furthermore, One-factor model CFA is performed to determine the existing of common method bias. Through comparing the fit between the one-factor model and the measurement model with only traits factor, the results showed that one-factor model yielded fit indices ( $\chi^2/df = 1635.538/169 = 9.68$ ; GFI = 0.60; CFI = 0.68; IFI = 0.68; RMSEA = 0.18) that were unacceptable and significantly worse than those of the current measurement model with ( $\chi^2/df = 728.454/163 = 4.46$ ; GFI = 0.80; CFI = 0.88; IFI = 0.88; RMSEA = 0.11).

These results suggest that measures of constructs used in the analysis did not suffer from common method bias.

## 5. RESULTS

### 5.1 Measurement validity and reliability

To assess the validity and reliability, the measurement scales are investigated whether demonstrate content validity, discriminant validity, convergent validity (AVE), and internal consistency and composite reliability. Since the scales were generated directly from prior researches, it is assumed that scales have content validity. The confirmatory factor analysis (CFA), which represents the measurement model of SEM, was used to evaluate the convergent and discriminant validity of the constructs (Fornell and Larcker, 1981). As shown in Table3:

**Table 3. Measurement model results**

<u>Constructs</u>	<u>Item</u>	<u>Standardized Item Loading</u>	<u>Critical Value</u>
Entrepreneurial leadership	V1	.854	-
	V2	.771	15.153
	V3	.855	17.923
	V4	.890	19.067
	V5	.681	12.816
Strategic flexibility	V6	.817	-
	V7	.760	14.508
	V8	.882	18.004
	V9	.841	16.757
Innovation speed	V10	.851	17.064
	V11	.911	25.244
	V12	.776	17.570
	V13	.786	17.991
	V14	.820	19.612
Innovation quality	V15	.918	-
	V16	.682	10.486
	V17	.843	12.613
	V18	.526	8.166

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V19	.760	11.597
V20	.709	-

As showed in the table3, all the standardized item loadings are greater than 0.50 and statistically significant ( $p < 0.01$ ) at high critical t values ranging from 8.166 to 25.244. This results show that all indicators are significantly related to their underlying theoretical constructs. Furthermore, Cronbach's alpha, composite reliability (CR) and AVE were applied to assess reliability and convergent validity (see table4).

**Table 4. Reliability and Validity of Measurement scales**

Constructs	Cronbach's alpha	Composite reliability	*AVE
Entrepreneurial leadership	.946	.987	.939
Strategic flexibility	.916	.986	.935
Innovation speed	.923	.990	.954
Innovation quality	.832	.971	.872

\*AVE and CR were calculated using Fornell and Larcker's (1981) formulas;

AVE=  $\frac{\text{Sum of Squared Standardized Loadings}}{\text{Sum of Squared Standardized Loadings} + \text{Sum of indicator Measurement Error}}$

CR =  $\frac{\text{Sum of Standardized Loadings}_2}{\text{Sum of Standardized Loadings} + \text{Sum of indicator Measurement Error}}$

As seen in Table4, the values of Cronbach's alpha and CR for all constructs are higher than 0.7. Thus, all the constructs have high internal consistency reliability. AVEs values confirm the convergent validity of the constructs, as they are higher than 0.5, providing support for convergent validity (Fornell and Larcker, 1981; Hair et al., 2011)

From analysis results, also, discriminant validity of the constructs is evaluated; accordingly, the square root of AVE for each latent construct was greater than its correlation with other constructs, so discriminant validity was confirmed (see Table 5).

**Table 5. Correlation and Discriminant validity of Measurement**

Constructs	Entrepreneurial leadership	Strategic flexibility	Innovation speed	Innovation quality
Entrepreneurial leadership	(.969)			
Strategic flexibility	.484**	(.966)		
Innovation speed	.563**	.861**	(.976)	
Innovation quality	.580**	.574**	.634**	(.933)

(Diagonal) shows the square root of AVEs.

\*\* $p < .01$ .

Finally, the CFA model is used to check the measurement model fits the data reasonably well. The loadings of the measurement items on their factors were all significant ( $p < 0.05$ ). Furthermore, Acceptable fit was obtained based on several goodness of fit indices such as CMIN/DF (= 4.46) which is less than 5, GFI (.80), CFI (.88), IFI (.88) and TLI (.86) all are close to 0.90, and RMR (.05) and RMSEA (.11), showing all achieve the recommended threshold (Byrne, 2010; Kline, 2016). Also, the parsimonious normed fit index (PNFI) is 0.73, above the cut-off point of 0.70. The CFA results, thus, indicated that the measurement model fits the data reasonably well, allowing proceeds to the structural model stage (Figure 2.).

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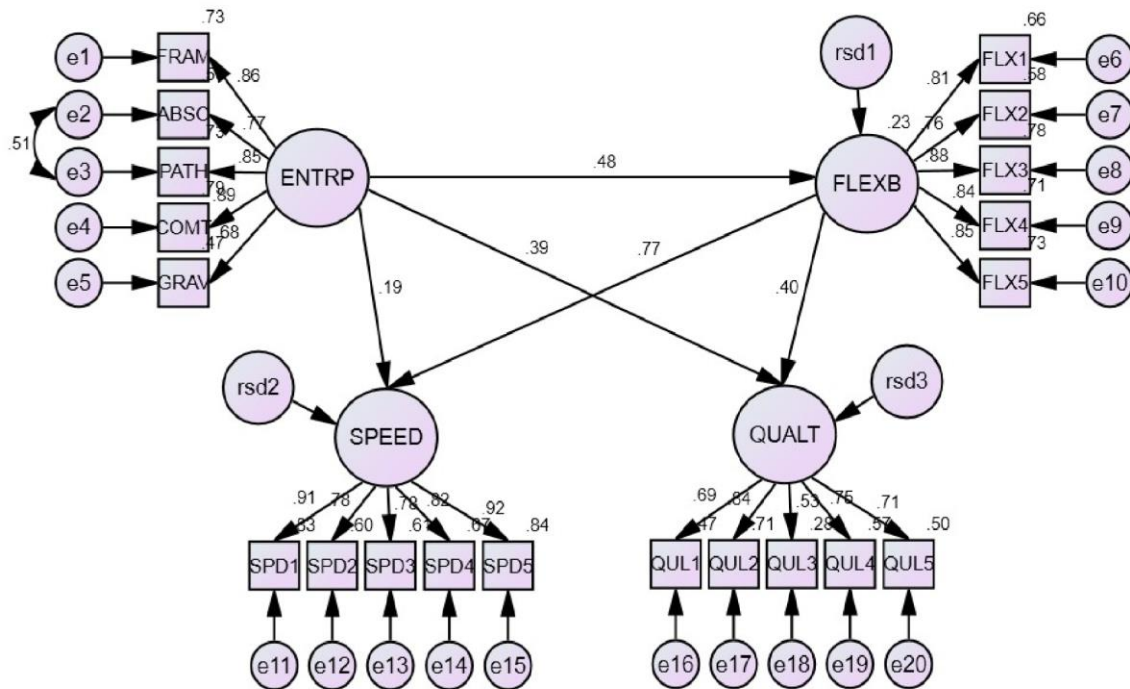


Figure 2. Results of SEM analysis

## 5.2 Hypotheses testing

After assessing and validating the measurement model and confirming its fitness, the structural equation modeling (SEM) was used with the maximum likelihood estimation method to test the research hypotheses. Generally, all the hypotheses of the proposed model were supported, and the validity and reliability of the model were confirmed. According to coefficients of standardized direct effect, the results indicated that entrepreneurial leadership has a direct positive and significant impact on innovation speed ( $\beta = 0.194$ ,  $T\text{-value} = 4.467$ ) and innovation quality ( $\beta = 0.393$ ,  $T\text{-value} = 5.785$ ). Therefore, hypotheses H1 and H2 are supported. It is also showed that entrepreneurial leadership has a positive and significant relationship with strategic flexibility ( $\beta = 0.484$ ,  $T\text{-value} = 7.601$ ), thus H3 is confirmed. Furthermore, strategic flexibility also has a positive and significant impact on innovation speed ( $\beta = 0.770$ ,  $T\text{-value} = 13.846$ ) and innovation quality ( $\beta = 0.401$ ,  $T\text{-value} = 5.882$ ), supporting H4 and H5. All significance levels of effects are at P values less than 0.01 (see table 6.).

Table 6. Results of the structural analysis

Paths	Estimate	B	S.E.	C.R.	P
ENTRP → SPEED	.257	.194	.058	4.467	***
ENTRP → QUALT	.352	.393	.061	5.785	***
ENTRP → FLEXB	.627	.484	.083	7.601	***
FLEXB → SPEED	.787	.770	.057	13.846	***
FLEXB → QUALT	.277	.401	.047	5.882	***

Consequently, the linear structural equations can be constructed, representing direct effects paths as following:

$$\text{Eq.1 FLEXB} = (.484) \text{ENTRP} + \text{rsd1}$$

$$\text{Eq.2 SPEED} = (.194) \text{ENTRP} + (.770) \text{FLEXB} + \text{rsd2}$$

$$\text{Eq.3QUALT} = (.393) \text{ENTRP} + (.401) \text{FLEXB} + \text{rsd3}$$

With regard to the indirect effect of entrepreneurial leadership practices on innovation speed and quality in Egyptian commercial banks through strategic flexibility, it has been verified through using the bias-corrected bootstrapping analysis to calculate the estimates and confidence intervals of the indirect effects with 500 replications (Ince et al., 2023). The results, at ( $p < 0.01$ ), indicated that strategic flexibility significantly mediates the relationship between entrepreneurial leadership and both

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innovation speed and quality, so H6 and H7 are supported. Furthermore, EL and SF explain 78% of variance in innovation speed and 47% of innovation quality, and EL explains 24% of variance in strategic flexibility (see table 7).

**Table 7. Results of mediating hypotheses and R<sup>2</sup>**

Indirect Effect	Estimate	*Std. Estimate	P	R <sup>2</sup>
ENTRP → FLEXB	-	-	-	.235
ENTRP → FLEXB → SPEED	.494	.373	.001	.776
ENTRP → FLEXB → QUALT	.174	.194	.001	.467

\* Std. Standardized Indirect Effects

## 6. DISCUSSION AND IMPLICATION

Building on the upper echelons theory and dynamic capability view of organization, this study shows that strategic flexibility is meaningful mechanism to better understand how leaders can and should operate in their banking organizations to facilitate innovation outcomes (Fontana and Musa, 2017; Yu et al., 2020; Malibari and Bajaba, 2022). All the hypotheses are supported; specifically, the results show that entrepreneurial leadership positively affects strategic flexibility consistent with previous research (such as Kafetzopoulos et al., 2022), which then increases entrepreneurial banks innovation outcomes i.e. speed and quality (De la Gala-Velásquez et al., 2023; Mohammed et al., 2022).

Results also find that entrepreneurial leadership does not only directly impact innovation speed and quality but is indirectly mediated by strategic flexibility capability, thus, this corresponds to some of studies' conclusion (AlHalaseh and Ayoub, 2021; Hensellek et al., 2023; Malibari and Bajaba, 2022; Nguyen et al., 2021; Yu et al., 2020), referring to the entrepreneurial leaders' effectiveness to identify possible opportunities and manage resources and inspire followers to exploit the opportunities to achieve organizational goals, think outside the box and motivate their followers, which can lead to more flexible decisions. Consequently, higher levels of strategic flexibility cause innovation easier and better and increase banks' competitiveness (Herhausen et al., 2021; Li et al., 2020; Mohammed et al., 2022).

Therefore, this study explores the black box relating to how the entrepreneurial leadership increased the level of Egyptian banks' innovation speed and quality based on one of the most important dynamic capabilities, i.e., strategic flexibility, and thus raises banks' competitiveness accordingly the proposed model.

Theoretically, this study contributes to several streams of entrepreneurship research. First, despite the growing interest in entrepreneurial leadership in businesses, organisations and leadership domains (e.g. Bagheri, and Harrison, 2020; Clark et al., 2019; Hensellek et al., 2023), few researchers have attempted to develop a measure to assess entrepreneurial leadership skills, qualities and behavior. Moreover, majority of previous studies used a total score of entrepreneurial leadership of Renko et al.(2015)'s ENTRELEAD without providing contributions to which underlying dimensions of entrepreneurial leadership are more effective (Bagheri and Akbari, 2018; Hensellek et al., 2023; Newman et al., 2018), thus, this study examined the multi-dimensional nature of the construct in a developing context (Egypt). Specifically, focus was on the previously identified dimensions including framing challenge, absorbing uncertainty, path clearing, building commitment, and defining gravity (Gupta et al., 2004; Huang et al., 2014; Yu et al., 2020). Second, the study provides a new understanding of the innovation mechanisms of entrepreneurial leadership in the context of entrepreneurial banks. Prior research has shown that entrepreneurial leadership can positively affect both individual employee's innovative behavior (Akbari et al., 2021; Bagheri, and Harrison, 2020; Lee et al., 2020) and organizational innovation (Yu et al., 2020). Third, the relationship between entrepreneurial leadership and innovation speed and quality is not straightforward, but occurs via mediating mechanisms (Li et al., 2020; Malibari and Bajaba, 2022). However, further empirical research is needed to better understand how entrepreneurial leadership can enhance innovation, especially on organizational level of analysis. Fourth, this study adopts a proactive perspective to operationalize strategic flexibility, seeking to address a 'conceptual schizophrenia' characterizing its literature by scholars across the strategy, management, innovation and entrepreneurship disciplines. As evident in the lack of cumulative theory development, multiple theoretical tensions and the need to pursue further attempts to consolidate the field (Herhausen et al., 2021).

Practically, findings from this study have a number of implications for the managers and leaders of Egyptian commercial banks who want to enhance the innovation capabilities of their employees so as to improve the progress and competitiveness of their business. First, the findings of this work assist the current and prospective business leaders and the entrepreneurs to identify the key roles that they can play in order to improve innovation capabilities among their employees and develop a

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promising and innovative environment to streamline the innovation process. Second, for entrepreneurial-based strategic flexibility in compatible with technological capability, it would be more advantageous for them to support and enhance the positive effect on speed and quality of organizational innovation by focusing on the flexible allocation and coordination of resources in response to changing environments. Further, managers should also ensure that recruits are employed under the leadership that displays entrepreneurial initiatives and behaviors. As entrepreneurial leaders can be seen as directing and assisting followers in achieving organizational goals by recognizing and exploiting opportunities via their creative contribution and enabling them to initiate such innovative endeavors as creating new options, situations, propositions and benefits, i.e. by creatively developing innovative practices for the benefit of the organization.

### **7. CONCLUSION AND FUTURE RESEARCH**

This study proposes a conceptual framework that empirically tested the relationship between entrepreneurial leadership (EL hereafter) and innovation speed and quality through the mediating role of strategic flexibility (SF hereafter). The results indicated that strategic flexibility has significantly mediated the relationships between EL and both innovation speed and quality. This study advances the EL literature by examining the mediating role of SF on the relationship of EL and innovation performance capabilities (speed and quality). This study, thus, fills a significant gap in the literature, by providing an important empirical contribution for researchers and will offer a valuable perspective for banking practitioners. In examining the EL and innovation speed, and EL and innovation quality connection, I have looked at the SF mechanism as the black box exploring how EL and innovation link. The results suggest that EL enhances innovation speed and quality indirectly through the mediation of SF. In these indirect paths, it is found that SF enhances innovation speed and quality as well. Thus, SF acts as a significant mediator between EL and innovation speed and quality.

However, there are several methodological limitations for this study. First, the cross-sectional design was used to conduct questionnaire. This is a limitation since the cross-sectional research design provides only insights about existing relationships at a certain point of time, and it does not allow the derivation of any causal claims from results. For this reason, a longitudinal design of research can provide information about causal relationships and enrich our understanding of the aforementioned associations. Second, since this study was implemented in a distinct geographical and developing cultural context such as Egypt, sampling plan may be a limitation. Third, this research is limited in investigating the direct and indirect effects of EL on innovation speed and quality through SF. Other factors should be investigated for a better understanding of the mechanism between EL and innovation in future studies. Fourth, the self-rating of EL is used in the current study. This may be regarded as a limitation, thus, future research could improve this deficiency by using other-rating evaluation of perceived EL. Finally, the proactive perspective is adopted for SF (creating new opportunities) in terms of the variety of available strategic options and/or the speed (timely response) of pursuing a strategic option; however, it can also react (responding to change) internally through resource deployment and/or externally via competitive actions in the future research, and considering SF as a multidimensional construct could be important contribution in EL literature.

### **REFERENCES**

- 1) Ahmed, F, and Harrison, C (2022) Entrepreneurial leadership development in teams: A conceptual model. *The International Journal of Entrepreneurship and Innovation* 14657503221143977.
- 2) Akbari, M, Bagheri, A, Imani, S and Asadnezhad, M (2021) Does entrepreneurial leadership encourage innovation work behavior? The mediating role of creative self-efficacy and support for innovation. *European Journal of Innovation Management* 24(1): 1-22.
- 3) AlHalaseh, R. H and Ayoub, Z (2021) Strategic Flexibility Mediating the Impact of Entrepreneurial Orientation on Organizational Excellence. *International Review of Management and Marketing* 11(6): 21-43.
- 4) Alikhani, Z, and Shahriari, M (2022) The effect of servant leadership on competitiveness of startups: The mediating role of entrepreneurial orientation and selfefficacy. *The International Journal of Entrepreneurship and Innovation*: 14657503221134511.
- 5) Al-Mansoori, R S and Koç, M (2019). Transformational leadership, systems, and intrinsic motivation impacts on innovation in higher education institutes: Faculty perspectives in engineering colleges. *Sustainability* 11(15): 4072.
- 6) Al-Sharif, A M, Ali, M H, Jaharuddin, et al. (2023) The Role of Innovation Capability in the Relationship between Entrepreneurial Leadership and Innovation Performance in the SMEs Service Industry. *Advances in Social Sciences Research Journal* 10(1).

## The Impact of Entrepreneurial Leadership on Innovation Speed and Quality: The Mediating Role of Strategic Flexibility

- 7) Amankwaa, A, Gyensare, M A and Susomrith, P (2019) Transformational leadership with innovative behaviour: Examining multiple mediating paths with PLSSEM. *Leadership and Organization Development Journal*.
- 8) Arif, MA (2019) The role of entrepreneurial orientation in achieving the strategic flexibility of the Egyptian pharmaceutical sector: A comparative field study. *Journal of Financial and Commercial Research* 3: 107-151.
- 9) Aslam, F and Maitlo, Q (2019) Entrepreneurial leadership and innovation: the mediating role of employee voice behavior. *Journal on Innovation and Sustainability RISUS* 10(2): 123-129.
- 10) Bagheri, A and Akbari, M (2018) The impact of entrepreneurial leadership on nurses' innovation behavior. *Journal of Nursing Scholarship* 50(1): 28-35.
- 11) Bagheri, A and Harrison, C (2020) Entrepreneurial leadership measurement: a multidimensional construct. *Journal of Small Business and Enterprise Development* 27(4): 659-679.
- 12) Beraha, A, Bingol, D, Ozkan-Canbolat, E and Szczygiel, N (2018) The effect of strategic flexibility configurations on product innovation. *European Journal of Management and Business Economics* 27(2): 129-140.
- 13) Bhatti, SH, Zakariya, R, Vrontis, D et al. (2021) High-performance work systems, innovation and knowledge sharing: An empirical analysis in the context of project-based organizations. *Employee Relations: The International Journal* 43(2): 438-458.
- 14) Brinckmann, J, Villanueva, J, Grichnik, D and Singh, L (2019) Sources of strategic flexibility in new ventures: An analysis of the role of resource leveraging practices. *Strategic Entrepreneurship Journal*, 13(2): 154-178.
- 15) Brozovic, D (2018) Strategic flexibility: A review of the literature. *International Journal of Management Reviews* 20(1): 3-31.
- 16) Buccieri, D, Javalgi, R G, and Jancenelle, V E (2021) Dynamic capabilities and performance of emerging market international new ventures: Does international entrepreneurial culture matter?. *International Small Business Journal*, 39(5): 474-499.
- 17) Cai, W, Lysova, E I, Khapova, S N and Bossink, B A (2019) Does entrepreneurial leadership foster creativity among employees and teams? The mediating role of creative efficacy beliefs. *Journal of Business and Psychology* 34: 203-217.
- 18) Central Bank of Egypt (2022) *Economic Review, Structure of the Egyptian Banking System* 62 (2): .95
- 19) Chen, Y, Wang, Y, Nevo, S and et al. (2017) Improving strategic flexibility with information technologies: insights for firm performance in an emerging economy. *Journal of Information Technology* 32(1): 10-25.
- 20) Clark, CM, Harrison, C and Gibb, S (2019) Developing a conceptual framework of entrepreneurial leadership: a systematic literature review and thematic analysis. *International Review of Entrepreneurship* 17(3): 347-384.
- 21) De la Gala-Velásquez, D, Hurtado-Palomino, A and Arredondo-Salas, A Y (2023) Organisational Flexibility and Innovation Performance: The Moderating Role of Management Support. *Global Journal of Flexible Systems Management* 24(2): 219-234.
- 22) Fachrunnisa, O, Adhiatma, A, Lukman, N and Ab Majid, M N (2020) Towards SMEs' digital transformation: The role of agile leadership and strategic flexibility. *Journal of Small Business Strategy* 30(3): 65-85.
- 23) Fernández-Pérez, V, García-Morales, V J and Pullés, D C (2016) Entrepreneurial decisionmaking, external social networks and strategic flexibility: The role of CEOs' cognition. *European Management Journal*, 34(3): 296-309.
- 24) Fontana, A and Musa, S (2017) The impact of entrepreneurial leadership on innovation management and its measurement validation. *International Journal of Innovation Science*.
- 25) Fornell, C and Larcker, D F (1981) Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research* 18(1): 39-50.
- 26) Ghorban, R and Gholipour, K (2018) Investigating the impact of strategic flexibility on organizational innovation. *International Review of Management and Marketing* 8(3): 1.
- 27) Grošelj, M., Černe, M., Penger, S., & Grah, B. (2020). Authentic and transformational leadership and innovative work behaviour: the moderating role of psychological empowerment. *European Journal of Innovation Management*.
- 28) Gupta, V, MacMillan, I C and Surie, G (2004) Entrepreneurial leadership: developing and measuring a cross-cultural construct. *Journal of business venturing* 19(2): 241-260.
- 29) Hair, J F, Ringle, C M and Sarstedt, M (2011) PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice* 19(2): 139-152.
- 30) Hamokhalil, M A M and Alshikh, Z F A (2019) The Role of Electronic Management Elements in Enhancing Organizational Flexibility A survey study of a sample of colleges at the University of Mosul. *Tikrit Journal of Administration and Economics Sciences* 15(45): Part.2.



## The Impact of Entrepreneurial Leadership on Innovation Speed and Quality: The Mediating Role of Strategic Flexibility

- 31) Harrison, C, Burnard, K, and Paul, S (2018) Entrepreneurial leadership in a developing economy: a skill-based analysis. *Journal of Small Business and Enterprise Development* 25(3): 521-548.
- 32) Hensellek, S, Kleine-Stegemann, L and Kollmann, T (2023) Entrepreneurial leadership, strategic flexibility, and venture performance: Does founders' span of control matter?. *Journal of Business Research* 157: 113544.
- 33) Herhausen, D, Morgan, R E, Brozović, D and Volberda, H W (2021) Re-examining strategic flexibility: a meta-analysis of its antecedents, consequences and contingencies. *British Journal of Management* 32(2): 435-455.
- 34) Hoang, G, Luu, T T, Nguyen, T T, Du, T, and Le, L P (2022) Examining the effect of entrepreneurial leadership on employees' innovative behavior in SME hotels: A mediated moderation model. *International Journal of Hospitality Management*, 102: 103-142.
- 35) Huang, S, Ding, D and Chen, Z (2014) Entrepreneurial leadership and performance in Chinese new ventures: a moderated mediation model of exploratory innovation, exploitative innovation and environmental dynamism. *Creativity and Innovation Management* 23(4): 453-471.
- 36) Hughes, M, Rigtering, J C, Covin, J G et al. (2018) Innovative behaviour, trust and perceived workplace performance. *British Journal of Management* 29(4): 750768.
- 37) Ince, H, Imamoglu, S Z and Karakose, M A (2023) Entrepreneurial orientation, social capital, and firm performance: The mediating role of innovation performance. *The International Journal of Entrepreneurship and Innovation* 24(1): 32-43.
- 38) Iqbal, A (2021) Innovation speed and quality in higher education institutions: the role of knowledge management enablers and knowledge sharing process. *Journal of Knowledge Management*.
- 39) Iqbal, A, Latif, F, Marimon, F et al. (2019) From knowledge management to organizational performance: Modelling the mediating role of innovation and intellectual capital in higher education. *Journal of Enterprise Information Management*.
- 40) Iqbal, A, Nazir, T and Ahmad, M S (2022) Entrepreneurial leadership and employee innovative behavior: an examination through multiple theoretical lenses. *European Journal of Innovation Management*, 25(1), 173-190.
- 42) Javed, B., Khan, A. A., Bashir, S., and Arjoon, S. (2017). Impact of ethical leadership on creativity: the role of psychological empowerment. *Current Issues in Tourism* 20(8): 839-851.
- 43) Jia, R, Hu, W, and Li, S (2022) Ambidextrous leadership and organizational innovation: the importance of knowledge search and strategic flexibility. *Journal of Knowledge Management* 26(3): 781-801.
- 44) Kafetzopoulos, D, Psomas, E, and Bouranta, N (2022) The influence of leadership on strategic flexibility and business performance: the mediating role of talent management. *Management Decision*. 60(9): 2532-2551.
- 45) Kamasak, R, Yozgat, U, and Yavuz, M (2017) Knowledge process capabilities and innovation: Testing the moderating effects of environmental dynamism and strategic flexibility. *Knowledge Management Research and Practice* 15(3): 356-368.
- 46) Khan, M A (2022) Entrepreneurial leadership and employee innovative behavior in the software development firms: do employees' epistemic curiosity and creative process engagement matter?. In *Evidence-based HRM: a Global Forum for Empirical Scholarship*. Emerald Publishing Limited 10 (2): 206-220.
- 47) Kharisma, P P, Irawanto, D W, and Rofiq, A (2020) Entrepreneurial orientation and its effect toward SME performance through strategic flexibility on fashion industry in Malang. *Jurnal Bisnis: Teori Dan Implementasi* 11(2): 182-194.
- 48) Kim, M Y, Park, S M, and Miao, Q (2017) Entrepreneurial leadership and organizational innovation: Improving attitudes and behaviors of Chinese public employees. *Public service innovations in China* 151-184.
- 49) Kimbu, A N, de Jong, A, Adam, I, Ribeiro, M A, Afenyo-Agbe, E, Adeola, O, and Figueroa-Domecq, C (2021) Recontextualising gender in entrepreneurial leadership. *Annals of Tourism Research*, 88: 103-176.
- 50) Laeeque, S H and Babar, S F (2017) Knowledge creation and firm performance: Is innovation the missing link?. *Pakistan Journal of Commerce and Social Sciences* 11(2), 505-523.
- 51) Lee, A., Legood, A., Hughes, D., Tian, A. W., Newman, A., and Knight, C. (2020). Leadership, creativity and innovation: A meta-analytic review. *European Journal of Work and Organizational Psychology*, 29(1), 1-35.
- 52) Leitch, C M, and Volery, T (2017) Entrepreneurial leadership: Insights and directions. *International Small Business Journal* 35(2): 147-156.
- 53) Li, C, Makhdoom, H U R, and Asim, S (2020) Impact of entrepreneurial leadership on innovative work behavior: Examining mediation and moderation mechanisms. *Psychology research and behavior management*: 105-118.

## The Impact of Entrepreneurial Leadership on Innovation Speed and Quality: The Mediating Role of Strategic Flexibility

- 54) Liao, S, Liu, Z, Fu, L and Ye, P (2018) Investigate the role of distributed leadership and strategic flexibility in fostering business model innovation. *Chinese management studies* 13(1): 93-112.
- 55) Malibari, M A and Bajaba, S (2022) Entrepreneurial leadership and employees' innovative behavior: A sequential mediation analysis of innovation climate and employees' intellectual agility. *Journal of Innovation and Knowledge* 7(4): 100255.
- 56) Mardani, A, Nikoosokhan, S, Moradi, M, and Doustar, M (2018) The relationship between knowledge management and innovation performance. *The Journal of High Technology Management Research* 29(1): 12-26.
- 57) Mehmood, M S, Jian, Z, Akram, U and Tariq, A (2021) Entrepreneurial leadership: the key to develop creativity in organizations. *Leadership and Organization Development Journal*.
- 58) Mehmood, M S, Jian, Z, and Gilal, F G (2020) Entrepreneurial leadership and employee innovative behavior: intervening role of creative self-efficacy. *Human Systems Management* 39(3): 367-379.
- 59) Mendoza-Silva, A (2021) Innovation capability: a systematic literature review. *European Journal of Innovation Management*, 24(3), 707-734.
- 60) Miao, Q, Newman, A, Schwarz, G and Cooper, B (2018) How leadership and public service motivation enhance innovative behavior. *Public Administration Review* 78(1): 71-81.
- 61) Migdadi, M M (2020) Knowledge management processes, innovation capability and organizational performance. *International Journal of Productivity and Performance Management*.
- 62) Mohammed, H O, Sadq, Z M, Abdullah, N N, and Arab, H R (2022) Role of Strategic Flexibility in Enhancing Innovation Performance From a Futuristic Perspective. *QALAAI ZANIST JOURNAL* 7(1): 1064-1081.
- 63) Nadkarni, S and Herrmann, P O L (2010) CEO personality, strategic flexibility, and firm
- 64) performance: The case of the Indian business process outsourcing industry. *Academy of Management Journal* 53(5): 1050-1073.
- 65) Naguib, H M, and Abou Naem, A E H M (2018) The impact of transformational leadership on the organizational innovation. *International Journal of Social Sciences and Humanities Invention* 5(1): 4337-4343.
- 66) Neely Jr, B. H., Lovelace, J B, Cowen, A P, and Hiller, N J (2020) Metacritiques of upper echelons theory: Verdicts and recommendations for future research. *Journal of Management* 46(6): 1029-1062.
- 67) Newman, A, Herman, H M, Schwarz, G, and Nielsen, I (2018) The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership. *Journal of Business Research* 89: 1-9.
- 68) Nguyen, P. V., Huynh, H. T. N., Lam, L. N. H., Le, T. B., and Nguyen, N. H. X. (2021). The impact of entrepreneurial leadership on SMEs' performance: the mediating effects of organizational factors. *Heliyon* 7(6): 07326.
- 69) Paudel, S (2019) Entrepreneurial leadership and business performance: Effect of organizational innovation and environmental dynamism. *South Asian Journal of Business Studies*.
- 70) Renko, M, El Tarabishy, A, Carsrud, A L, and Brännback, M (2015) Understanding and measuring entrepreneurial leadership style. *Journal of small business Management* 53(1): 54-74.
- 71) Sawaeen, F and Ali, K (2020) The impact of entrepreneurial leadership and learning orientation on organizational performance of SMEs: The mediating role of innovation capacity. *Management Science Letters* 10(2): 369-380.
- 72) Sekaran, U and Bougie, R (2016) *Research methods for business: A skill building approach*. John Wiley and sons.
- 73) Shafique, I, Ahmad, B, and Kalyar, M N (2020) How ethical leadership influences creativity and organizational innovation: Examining the underlying mechanisms. *European Journal of Innovation Management*, 23(1), 114-133.
- 74) Shalender, K and Yadav, R K (2019) Strategic flexibility, manager personality, and firm performance: The case of Indian Automobile Industry. *Global Journal of Flexible Systems Management* 20: 77-90.
- 75) Su, Z (2020) Institutional environment for entrepreneurship, strategic flexibility, and entrepreneurial orientation. *IEEE Transactions on Engineering Management* 69(4): 1000-1010.
- 76) Teece, D J, Pisano, G, and Shuen, A (2021) Dynamic capabilities and strategic management. *Strategic management journal* 18(7): 509-533.
- 77) Tlaiss, H A and Kauser, S (2019) Entrepreneurial leadership, patriarchy, gender, and identity in the Arab world: Lebanon in focus. *Journal of Small Business Management* 57(2): 517-537.
- 78) Tseng, C and Tseng, C C (2019) Corporate entrepreneurship as a strategic approach for internal innovation performance. *Asia Pacific Journal of Innovation and Entrepreneurship* 13(1): 108-120.

## The Impact of Entrepreneurial Leadership on Innovation Speed and Quality: The Mediating Role of Strategic Flexibility

- 79) Wang, M, Li, Y, Li, J, and Wang, Z (2021) Green process innovation, green product innovation and its economic performance improvement paths: A survey and structural model. *Journal of Environmental Management* 297: 113282.
- 80) Wang, X, Qi, Y, and Zhao, Y (2019) Individual unlearning, organizational unlearning and strategic flexibility: The down-up change perspective. *Baltic Journal of Management* 14(1): 2-18.
- 81) Wang, Z, Meng, L, and Cai, S (2019) Servant leadership and innovative behavior: A moderated mediation. *Journal of Managerial Psychology* 34(8): 505-518
- 82) Wibowo, A, and Saptono, A (2018). Does entrepreneurial leadership impact on creativity and innovation of elementary teachers?. *Journal of Entrepreneurship Education* 21(2): 1-9.
- 83) Xiu, L, Liang, X, Chen, Z, and Xu, W (2017) Strategic flexibility, innovative HR practices, and firm performance: A moderated mediation model. *Personnel Review* 46(7): 1335-1357.
- 84) Yamak, O U, and Eyupoglu, S Z (2021) Authentic leadership and service innovative behavior: mediating role of proactive personality. *SAGE Open* 11(1): 2158244021989629.
- 85) Yousaf, Z, and Majid, A (2018) Organizational network and strategic business performance: does organizational flexibility and entrepreneurial orientation really matter?. *Journal of Organizational Change Management*.
- 86) Yu, Y, Zhang, X, Huang, S, Chen, Z, and Chen, Z (2020) Entrepreneurial leadership and innovation performance in new ventures: Examining the roles of strategic flexibility and environmental turbulence. *Entrepreneurship Research Journal* 12(4): 629-652.
- 87) Zahra, S A, Hayton, J C, Neubaum et al. (2008) Culture of family commitment and strategic flexibility: The moderating effect of stewardship. *Entrepreneurship theory and practice* 32(6): 1035-1054.
- 88) Zheng, J, Wu, G, Xie, H, and Li, H (2019) Leadership, organizational culture, and innovative behavior in construction projects: The perspective of behavior-value congruence. *International Journal of Managing Projects in Business*.
- 89) Zhou, K Z, and Wu, F (2010) Technological capability, strategic flexibility, and product innovation. *Strategic management journal* 31(5): 547-561.



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## The Impact of Performance Appraisal on Employee Turnover on the Medical Field in Egypt



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**ABSTRACT:** One of my principal concerns when I got advanced and turned into a director liable for overseeing and managing 9 subordinates is how to deal with these individuals really and productively and with regards to examination, reasonably and solidly evaluate their work and endeavors, yet the story doesn't go consistently that way.

"You are a chief, you know how to pass judgment on your kin", that was my chief response when I asked him how I might lead the exhibition evaluation for my group, I got stunned and featured on the examination structures attempting to reasonably disclose the critical components of this examination and afterward direct the meeting.

In this examination I attempted to sort out the genuine terrible practices and disadvantages of not being adequately qualified to assess your group and consequently the perils that will be affected on the exhibition the board cycle which will be expired prompting higher paces of worker turnover.

### 1. INTRODUCTION

#### 1.1 The Topic

The Effect of Execution Evaluation Practices and Representative Turnover on the clinical field in Egypt.

#### 1.2 The Problem Statement

Somewhat, we are leading business through various comparable ways, we perform and deal with the presentation of others, yet with regards to analysis, judge, assess and evaluate our subordinates, and here comes the issues.

The genuine issue is in understanding the right acts of the exhibition evaluation meetings and its ramifications, which chiefly outlined in the representative turnover and influencing the maintenance the organization wants.

#### 1.3 The Importance of the study

I accept this examination could help working on the comprehension of the great acts of the presentation evaluation meetings prompting better control the results of these evaluations by diminishing the representative turnover because of the awful acts of these exhibition examination and thus better worker maintenance.

#### 1.4 The research Questions

What is performance?

What are the determinants of performance?

What are the performance dimensions?

What is performance management?

What is performance appraisal?

What are the desired practices?

What are the dos and don'ts of performance appraisal practices?

### 2. THE DEFINITION OF PERFORMANCE

#### 2.1 The definition of performance:

To make the image understood, there are two stages, the initial step is the way of behaving, which is the demonstration of the representative, and there is the outcome, which is the result of a worker's conduct. Generally, the presentation the board frameworks measure the both the worker conduct and the effect of this conduct on the association whether emphatically, adversely, or impartially.

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While discussing execution, we can characterize it by just the way of behaving, the demonstrations of the worker not thinking about the aftereffects of this way of behaving. There are two qualities of conduct:

**1-Evaluative Way of behaving:** these ways of behaving can be decided as certain, negative, or unbiased on the association influence level and the adequacy of these signs. I can call the way of behaving of a representative as extraordinary, better than expected meeting organization necessities or underneath organization prerequisites.

**2-Multi-layered Conduct:** there are a great deal of conduct sorts that are consolidated, interrelated, and could progress or ruin the association goals.

### 2.2 Determinants of performance:

We want to comprehend the reason why certain individuals could perform profoundly than others that are what we call determinants of execution. There are three explanations for this variety, which are:

**1-Definitive information:** it tends to be characterized as the data about things and realities, which incorporates the degree of figuring out the errands, the prerequisites, the standards, and objectives of that undertaking.

**2-Procedural Information:** it tends to be characterized as what will be finished, and how to do and play out these errands; it incorporates perceptual, engine, physical, relational, and mental abilities.

**3-Motivation:** we are discussing three kinds of decision ways of behaving:

\*Decision to apply exertion: I will go to work tomorrow.

\*Decision of what amount of input: I will put forth a valiant effort against I won't make a solid attempt.

\*Decision of the degree of tirelessness: I will endure regardless of the circumstance is against I will surrender sooner or later.

### 2.3 Performance Dimensions

We settled on considering the presentation as complex, truth be told, there are numerous sorts of ways of behaving or execution, yet we will discuss the main two sorts which are not be guaranteed to remain closely connected, in another words, a representative could perform well on one kind and extremely terrible on the other kind, these two kinds are:

**1-Task Performance:** it incorporates a wide range of exercises and tasks that change the contributions to yields whether the results are items or administrations.

It incorporates all change techniques that successfully and proficiently works like preparation, promoting, assembling, innovative work, conveyance, buy and supply.

**2-Contextual Performance:** it incorporates all ways of behaving that add to the powerful and proficient climate where the undertaking execution can happen.

It tends to be more perceived by models like accomplishing other things work to finish the work effectively, excitement, support, volunteer, start and adhere to hierarchical guidelines and approaches.

## 3. THE DEFINITION OF PERFORMANCE MANAGEMENT

### 3.1 What is Performance Management?

As per Michael Armstrong, and inside a concurred structure of arranged objectives, goals, norms and skill prerequisites, the presentation the board can be characterized as an orderly interaction planning to work on the hierarchical execution by understanding, overseeing and fostering the exhibition of the people, gatherings and groups.

As such, we can characterize execution the executives as the course of really and productively immediate and support representatives as conceivable in accordance with the authoritative prerequisites.

As per Herman Aguinis, Execution the executives is viewed as a constant course of distinguishing proof, estimation and creating execution in associations by connecting the presentation of every person and targets to the association's general mission and objectives. It is portrayed by being a Persistent and continuous interaction. It includes a perpetual course of laying out objectives and targets, perception of execution, and afterward giving and getting instructing lastly criticism.

### 3.2 The Contribution of Performance Management

There are many benefits related with better execution of execution the executives frameworks like,

\*Expanding the inspiration of the people, gatherings and groups inside associations.

\*Expanding the confidence by getting criticism around one's presentation, which for sure prompts appreciated and better esteemed of the representative work.

\*Expanded and profound investigate about the subordinates execution and character to foster better relationship with them.

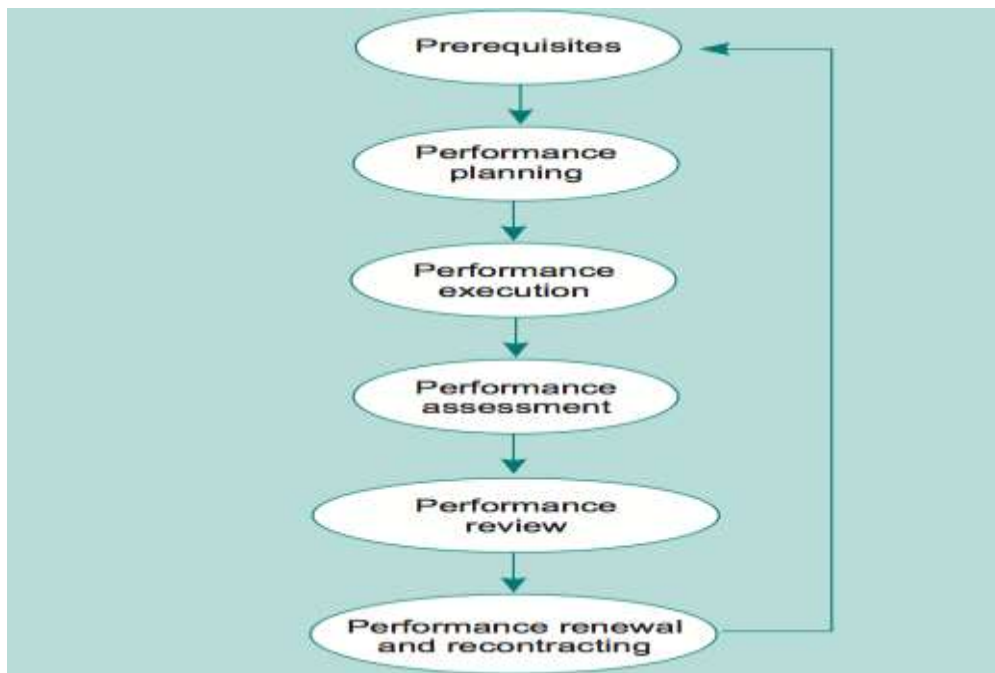
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\*Explanation of occupation definition and profound experiences about its rules while better recognizing what will be the way of behaving and the ideal consequences of an effective entertainer.

\*Better explanation for the association objectives, targets and systems.

### 3.3 Performance Management Process

Table 1



3.3.1 Prerequisites

3.3.2 Performance Planning

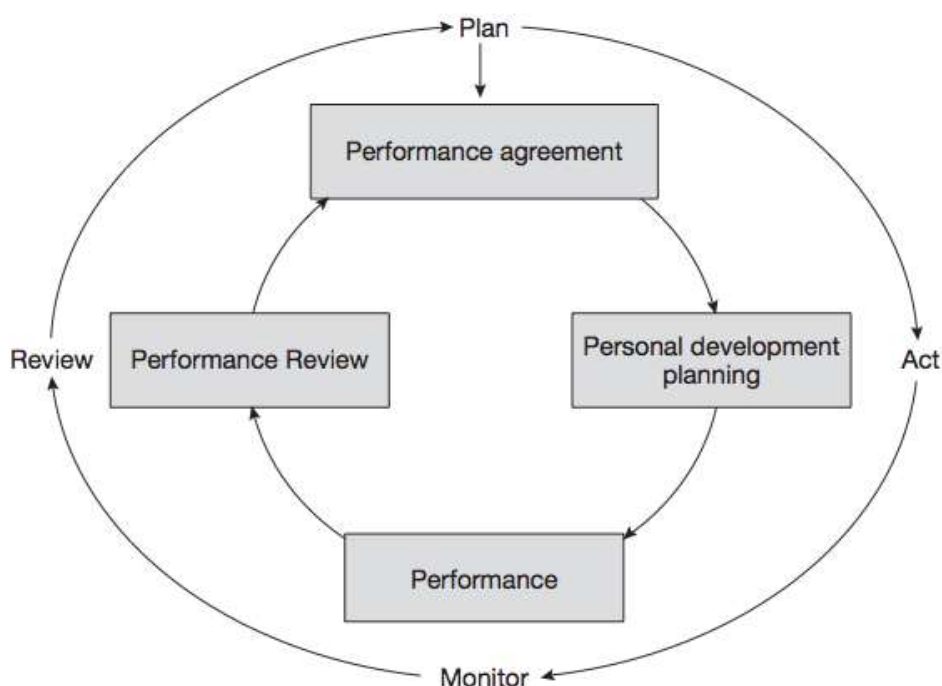
3.3.3 Performance Assessment

3.3.4 Performance Review

3.3.5 Performance renewal and contracting

### 3.4 Performance Management Process according to Michael Armsrtrong

Table 2



## The Impact of Performance Appraisal on Employee Turnover on the Medical Field in Egypt

### 4. PERFORMANCE APPRAISAL AND PERFORMANCE MANAGEMENT

#### 4.1. Famous Mistake

So many managers (not HRM) imagine that the exhibition examination is a similar guideline as execution the executives. Be that as it may, there are numerous massive contrasts. Execution examination is considered as the proper appraisal and assessment of people by their supervisors through a yearly survey meeting. Interestingly, execution the board where it is a nonstop and a lot more extensive, more complete, and more regular course of the executives that explains common assumptions, underscores the help job of supervisors who are supposed to go about as mentors as opposed to judges and spotlights on what's in store.

#### 4.2 Comparison between performance appraisal and performance management

Table 3

<i>Performance appraisal</i>	<i>Performance management</i>
Top-down assessment	Joint process through dialogue
Annual appraisal meeting	Continuous review with one or more formal reviews
Use of ratings	Ratings less common
Monolithic system	Flexible process
Focus on quantified objectives	Focus on values and behaviours as well as objectives
Often linked to pay	Less likely to be a direct link to pay
Bureaucratic – complex paperwork	Documentation kept to a minimum
Owned by the HR department	Owned by line managers

#### 4.3 An Example for Performance Appraisal Forms

##### PERFORMANCE APPRAISAL 2020

##### FIELD FORCE

##### Objective Setting and individual appraisal 2020

<b>Employee Name:</b>		<b>Division:</b>	
<b>Position:</b>		<b>Division Head:</b>	
<b>Years in Position:</b>		<b>Direct Manager:</b>	
<b>Seniority within EG:</b>			
<b>Business Unit/ Division Objectives:</b>			

Priority	Employee Objectives				Mid-year Review		End-year appraisal		Achv.%
	Objectives	Milestone	Timing	Weight %	Employee Comments	Manager's Feedback	Employee Assessment	Manager's Assessment	

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	Employee Objectives				Mid-year Review		End-year appraisal		
Priority	Objectives	Milestone	Timing	Weight %	Employee Comments	Manager's Feedback	Employee Assessment	Manager's Assessment	Achv.%

### Annual Qualitative Appraisal Guidelines

- Annual qualitative evaluation is filled in during mid-year and end-year end-year appraisal. Nonstop conversations, and input anyway ought to occur along the year
- This subjective evaluation addresses "how" the goals have been accomplished. It fundamentally centers around the perspectives, values and skills of the representative.
- The following is a rule to assist you with assessing subjective execution

Appraisal	Description	Achievement %
<b>CER</b> Consistently Exceeding job requirements / expectations	Employee performed a long way past settled upon assumptions. Reliably surpassed the vital significant goals of the allotted work and reliably meeting and surpassing execution factors for the gig. Played out all angles with adequacy and proficiency.	<b>104%-106%</b>
<b>ER</b> Exceeding job requirement	Employee performed above settled upon assumptions. Occasionally surpassed the critical significant targets of the doled-out work and meeting execution factors for the gig. Subsequently, commitments were fundamentally above assumptions.	<b>101%-103%</b>
<b>MR</b> Meeting job requirements	Employee accomplished settled upon key significant goals at the allocated work. Played out all parts of work agreeable and true to form. Therefore, commitments were completely living up to assumptions.	<b>90%-100%</b>
<b>FR</b> Failing short of job requirement	Employee performed at or underneath settled upon assumptions. Every so often, didn't meet the critical significant goals/focuses as well as delicate skills norms. Thus, not all commitments live up to assumptions.	<b>81%-89%</b>
<b>CFR</b> Consistently failing job requirement	The employee's general exhibition is by and large unsatisfactory and requires prompt improvement.	<b>Below 80%</b>
<b>Total</b>		



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## Annual Qualitative Appraisal

### Performance Factors

#### 1) Territory Management

Planning and organizing - incorporate record keeping, call action, arranging, deals asset the board, authoritative exercises, correspondence and advancement notwithstanding follow-up of an area field-tested strategy.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

#### 2) Financial Awareness

Mindful of the money wordings, distinguishes information connections perceives patterns and examples, makes suggestions in view of examination.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

#### 3) Market/ Product Knowledge

Exhibits and applies item information, a sensible measure of skill, consciousness of serious or substitute items inside the market, attention to innovation patterns and improvement inside the field.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

#### 4) Customer Relations Management

The capacity to foster savvy ways of distinguishing, address and surpass clients' issues. Clients might incorporate inside clients, and direct clients. Expand on long haul center around connections.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

### Personal Factors

4)Living the Organization Values (Responsibility - Morals - Social Obligation - Human Turn of events - Advancement - Straightforwardness - Greatness - Initiative - Client Concentration)

The degree the jobholder is appreciating and exhibiting the organization's qualities in ordinary associations with clients, subordinates, and partners.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

#### 5) Judgment & Decision Making

Exhibits a capacity to assemble and sort out data and accomplish obvious end result sooner rather than later gauges options and use wise judgment that mirror current realities of the circumstances.

CER	ER	MR	FR	CFR

Comments on Ranking:

-----

#### 6) Interpersonal Communications

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The capacity to communicate message to others in an unmistakable and precise method of readiness to get his/her point across as for other's viewpoints. Showing high capacities of undivided attention with great correspondence style evenly inside the organization.

<b>CER</b>	<b>ER</b>	<b>MR</b>	<b>FR</b>	<b>CFR</b>

Comments on Ranking:

-----

### 7) Discipline and Punctuality

The representative shows getting it and regard of discipline as a general rule, regard association working hours, participation records, meeting& clothing regulation, implicit set of principles.

<b>CER</b>	<b>ER</b>	<b>MR</b>	<b>FR</b>	<b>CFR</b>

Comments on Ranking:

-----

### 9) Contacts & Relations

<b>CER</b>	<b>ER</b>	<b>MR</b>	<b>FR</b>	<b>CFR</b>

Comments on Ranking:

-----

Worker self-Appraisal for all out-year performance	
Chief's input for absolute year performance	

Employee Name: \_\_\_\_\_

Manager Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### My Development Plan 2011

Development areas	Action Plan	Follow up & feedback


## The Impact of Performance Appraisal on Employee Turnover on the Medical Field in Egypt


Employee Name: \_\_\_\_\_ Manager Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Signature: \_\_\_\_\_

### 4.4 Managing POSITIVE AND NEGATIVE Components

This could be the area of most noteworthy worry to most line administrators, a considerable lot of whom could do without to distribute reactions. Execution audits ought not be viewed as a chance for appending fault for things that have turned out badly previously.

Assuming people must be shown that they are responsible for disappointments to perform to standard or to arrive at targets, which ought to have been finished when the disappointment happened, not set something aside for the survey meeting.

On the off chance that this kind of approach is embraced, the conversation will zero in on the disappointment, the negatives, and the singular will become protective. This can be damaging and makes sense of why certain individuals feel that the yearly survey meeting will be a 'beat me over the head' meeting.

To underemphasize the positive viewpoints diminishes the extension for activity and inspiration. More can be accomplished by expanding on up-sides than by focusing on the negatives. Individuals are generally responsive to the requirement for additional realizing when they are discussing achievement. Engaging individuals involves expanding on progress.

However, this doesn't imply that underperformance ought to slip through the cracks. Explicit issues might have been managed at that point however it might in any case be important to examine where there has been an example of underperformance. The initial step, and frequently the most troublesome one, is to get individuals to concur that there is opportunity to get better.

This will best be accomplished assuming that the conversation centers around authentic proof of execution issues. Certain individuals won't ever concede to being incorrectly and in those cases, you might need to say basically that 'Here is the proof; I have almost certainly that this is right; I'm apprehensive you need to acknowledge from me based on this proof that your presentation in this regard has been unsuitable.' Please, the point isn't at fault individuals however to take a positive view considering getting replies to questions, for example, these:

- 1-For what reason do you suppose this has been going on?
- 2-What how about you do about it?
- 3-What might I do?

### 4.5 What to do for effective Performance Appraisal

- 1-Spotlight on the text not the specific situation.
- 2-The examination should be finished utilizing the types of execution evaluation.

#### 4.5.1 Before the Meeting

Gather information.

- Concentrate on the worker's expected set of responsibilities, audit goals.
- Contrast the exhibition with the guidelines/objectives.
- Audit the worker's past evaluations.

Inform the employee.

- Making a meeting with the representatives
- Tell the worker the motivation behind the meeting.
- Impart the assumptions to the representative for the arranging time frame, giving him/her with a draft of division and individual targets.
- Getting some information about how he/she can contribute, and any extra obligations he/she can expect.

#### 4.5.2. During the Meeting

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- Convenient Atmosphere
- Utilize a critical thinking approach by posing open inquiries and listening cautiously to learn the subordinate discernment.
- Try not to underrate how much time the gathering will take. (Min. 30 minutes)
- Give your subordinate most of talking.
- Try not to invest a lot of energy choosing not to move on
- Settle on unambiguous moves toward be taken for enhancements.
- Center around the future execution.
- Be immediate and explicit.
- Try not to get individual.
- Urge the individual to talk.
- Perceive the qualities focuses.
- Gives models.
- Never say "consistently"
- In the shortcoming regions inquire "how might you get to the next level"
- Try not to assault and analysis.
- Select your phrasing cautiously, utilize the right words

### 4.6 Assessor's Errors

#### Recency

recalling what happened last week or last month.

#### Overemphasis

giving a lot of weight to one remarkable great or unfortunate element

#### Unforgiving

not permitting a representative's current presentation to dominate an unfortunate work record previously.

#### Favoritism

being impacted by an individual's inclination notwithstanding a terrible showing

#### Gathering

all representatives in a standard work bunch with a similar brush

## CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

Based on more than 90 studies published in over 70 journals, the authors presume that work execution in medical services can be conceptualized into four aspects: task, context oriented and versatile execution, and counterproductive work conduct. For the most part, these aspects relate with the aspects examined in the gig execution writing. This suggests that these aspects can be utilized for additional examination into work execution in medical services. Numerous medical care concentrates on work execution center around two aspects: task and relevant execution. Be that as it may, versatile execution, which is critical in continually evolving conditions, is under-explored and ought to be analyzed further in future examination. This additionally applies to counterproductive work conduct. To further develop work execution, intercessions are expected on the full scale, meso-, and miniature levels, which connect with administration, initiative, and individual abilities and qualities.

## REFERENCES

- 1) Ahmed, A., Hussain, I., Ahmed, S., & Akbar, M. (2010). Performance Appraisals Impact on Attitudinal Outcomes and Organisational Performance. *International Journal Of Business & Management*, 5(10), 62-68.
- 2) Armstrong, M and Baron, A (2005) *Managing Performance: Performance management in action*, Chartered Institute of Personnel and Development, London
- 3) Aslam, H., & Sarwar, S. (2010). Improving Performance Management Practices in IT Firms of Pakistan. *Journal Of Management Research*, 2(2), 1-15.
- 4) Cash, M. L., & Gardner, D. (2011). Cognitive hardiness, appraisal and coping: comparing two transactional models. *Journal Of Managerial Psychology*, 26(8), 646-664. doi:10.1108/02683941111181752

## The Impact of Performance Appraisal on Employee Turnover on the Medical Field in Egypt

- 5) Cho, Y., & Lewis, G. B. (2012). Turnover Intention and Turnover Behavior: Implications for Retaining Federal Employees. *Review Of Public Personnel Administration*, 32(1), 4-23. doi:10.1177/0734371X11408701
- 6) Fisher, C. D., & Thomas, J. (1982). THE OTHER FACE OF PERFORMANCE APPRAISAL. *Human Resource Management*, 21(1), 24-26.
- 7) JAWAHAR, I. M. (2006). Correlates of Satisfaction with Performance Appraisal Feedback. *Journal Of Labor Research*, 27(2), 213-236.
- 8) Kuvaas, B. (2006). Performance appraisal satisfaction and employee outcomes: mediating and moderating roles of work motivation. *International Journal Of Human Resource Management*, 17(3), 504-522.
- 9) Peretz H, Fried Y. National Cultures, Performance Appraisal Practices, and Organizational Absenteeism and Turnover: A Study Across 21 Countries. *Journal Of Applied Psychology* [serial online]. March 2012;97(2):448-459.
- 10) Robbins, S. P., & Judge, T. (2007). *Organizational behavior*. Upper Saddle River, N.J: Pearson/Prentice Hall.
- 11) Sogra, K., Shahid, A., & Najibullah, S. (2009). Organizational Outcomes of the Employees' Perceptions of Performance Appraisal Politics: A Study on Executive MBA Students in Bangladesh. *South Asian Journal Of Management*, 16(3), 43-60.



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## E-Commerce Effect on the Entry Modes of Service Firms

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**EXECUTIVE SUMMARY:** Numerous research studies examined the variables affecting internationalization. Market allure, demand ambiguity, country risk, and lastly cultural similarity were examined. Even though the research focused on a few variables, there was no systematic attempt to evaluate these variables and how they affect the service firm's choice of entrance strategy. According to this study, technology should be considered while deciding how to enter foreign markets. Some service businesses can go worldwide right away, but there are some services that cannot be produced and disseminated digitally. E-commerce technology can still be used to boost the effectiveness of service creation and delivery.

**KEYWORDS:** Technology, e-commerce, service firms, international management, international market, entry mode.

### INTRODUCTION

This essay focuses on how e-commerce affects service organizations' decision over how to enter new markets. Focus will be placed on the intersection of e-commerce, services marketing, and foreign market entry method selection on the basis of recent reconceptualization of marketing theories and concepts with services as a significant component.

Recently, there has been a paradigm shift in marketing where service is now seen as the core element of trade. As a result, marketing needs to be reevaluated to account for this trend toward services. The digital revolution, which had a stronger influence on services than on manufacturing and has changed how services are marketed, is responsible for this shift. The rise in the number of service companies engaging in global marketing has made it crucial to look at service companies' entry-mode tactics.

### DEFINITIONS

The service sectors are being transformed by information technology, but little has been published about how e-commerce is affecting service firms' strategy for entering global markets. The primary goals of this study are to examine how technology is affecting the marketing of services and the strategic ramifications of e-commerce for approaches to entering international markets. Most research on international services to far has concentrated on illuminating why notions for entry modes created for the industrial sector might not completely apply to service organizations. Additionally, the majority of them were largely uninterested in broad categories of services, focusing instead on specific service sectors like banking and advertising.

For a business to be successful in a foreign market, it is essential to use the right entrance mode. Every entry mode has a different level of control, therefore More recently, e-commerce has dramatically changed the nature of services and service delivery systems due to resource commitment and investment risk. Hence, traditional entry strategies of service companies are not enough (K. Sivakumar, 2004) The structure of the article is as follows: First, a brief overview of the definitions is given, and then the impact of market-related factors on the choice of foreign market entry mode for service companies is considered. We then briefly discuss the choice of international market entry, after which we discuss the strategic variables that influence the choice of entry mode. The impact of technology and marketing conditions on firms' market entry choices is then discussed. Finally, is the conclusion of the article. The word "international" is the starting point. Baldwin defines international activity as "activity that crosses nation-state boundaries". As for management, the following simple definition of management will suffice: "Management is the process of planning, organizing, directing, and controlling the organization, which individuals (managers) use to achieve an organization's goals".

International management is "the process of planning, organizing, directing, and controlling the organization, used by individuals (managers) to achieve organizational goals when the organization is involved in cross-border activities or functions outside its nation-state." Another definition of international management is the process of applying management concepts and techniques in a multinational environment. International business is defined as "business that transcends national borders, that is, includes

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the comparative study of corporate organizational forms in different countries, the transnational activities of companies, and the interaction of companies with the international environment". International strategy is defined as "international strategic management is a series of comprehensive commitments, decisions and actions made by enterprises to obtain international competitiveness". (Lorraine Eden, 2010) A mode of entry is defined as "a structural arrangement that allows a company to implement its product or service market strategy in a host country, or through marketing operation" marketing activities (i.e., through export mode) or production and marketing activities alone or in cooperation with others (contractual mode, joint venture, sole proprietorship)" (Tadas Šarapovas, 2016)

### **THE IMPACT OF MARKET-RELATED FACTORS ON THE CHOICE OF FOREIGN MARKET ENTRY MODE BY SERVICE FIRMS**

The topic of internationalization is getting more and more attention. Choosing the method of entry is the most important factor for the success of foreign market activities. This section explores the key factors in choosing an overseas market entry mode. By analyzing the market-related factors of the entry mode, the impact of the market-related factors on the choice of the service enterprise's entry mode is examined. In addition to market selection, the most important factor for the success of foreign market activities is the way of entry.

In addition to market selection, the most important factor for the success of foreign market activities is the way of entry. Internationalization theory, transaction cost theory, Dunning's eclectic paradigm, resource-based theory and other theories explain the choice of foreign market entry mode. However, all these studies lack attention to the internationalization of service firms. Many studies have focused on the analysis of factors affecting internationalization. Market attractiveness, demand uncertainty, country risk and finally cultural similarity are analyzed. Although the above studies examine specific factors, no systematic attempt has been made to assess these factors and their impact on service firms' choice of entry modes. Theories of internationalization and transnational business activity date back to the 1960s and 1970s. The question of choosing the right means of entry has been an ongoing discussion since the early days of international business studies.

Several studies have categorized possible entry modes according to popularity, rank, ownership or control. In general, companies that need to build personal relationships in foreign markets choose a high-control access model. The high control model is preferred by companies with high value brands that require high control to ensure their consistent application in international markets. Firms that perceive the market to be very uncertain are more likely to choose the low-control model. When choosing a foreign market entry mode, two market-related factors, market attractiveness and cultural similarity between the home market and the host country market, are very important. The results may be relevant to arguments from transaction cost theory, which holds that firms can achieve economies of scale and are more likely to take higher risks if they choose more investment-intensive modes of entry. Cultural similarity, proven important in entry-level of selection process.

Administration organizations will generally pick high control passage modes when they enter all the more socially comparative unfamiliar business sectors. This can be made sense of by the contention that comparative business sectors make it more straightforward for organizations to gain data, figure out the market. Accordingly, organizations in additional socially comparative business sectors are bound to pick high control passage mode. (Tadas Šarapovas, 2016).

### **STRATEGIC VARIABLES THAT INFLUENCE ENTRY MODE CHOICE IN SERVICE FIRMS**

Presently we will examine what a company's worldwide system means for decision of passage mode in the help area. The factors that are regularly utilized in concentrating on the assembling area are not huge or display various outcomes in various gatherings of administration exercises. In spite of the significance of the help area in world economy during the keep going ten years, the exploration on administrations in a global setting is still restricted contrasted and research on the assembling area.

In many assistance firms, the exchanging costs is moderately little since important resources are human resources not actual resources; subsequently, venture designs in the assembling area is unique in relation to the help area.

The motivation behind this part is to comprehend the internationalization processes more readily inside the help area. What's more, in this part, we mean to give proof about which of the standards saw in the assembling area are appropriate to the help area and which might be adjusted to the qualities of administrations.

Different section modes are accessible to firms, from full-control modes, such Greenfield or entirely claimed auxiliaries, to shared-control modes, as halfway acquisitions or joint endeavors.

In spite of the fact that exploration has shown that TCA-and OCP related factors influence passage mode decision, different variables might assume a part. Vital inspirations, serious tensions and the specific idea of administrations might influence the section choice. Firms utilize higher control modes to expand market power by entering new business sectors and take advantage of market information while following contenders to unfamiliar nations.

## **E-Commerce Effect on the Entry Modes of Service Firms**

The presentation of vital aspects into the examination of section mode is fundamental in a world described by expanding globalization. Firms progressively contend worldwide instead of broadly. With the developing worldwide contest, the moves made in one market frequently have repercussions in public business sectors.

Moreover, the section mode choices for made products can't be moved to administrations. As administrations are immaterial, likewise benefits will quite often be indivisible. Furthermore, administrations are transient. At long last, administrations are heterogeneous and exceptionally modified.

Subsequently, grouping administrations is a troublesome errand. In any case, a few characterizations have been proposed. For instance, as per how much they are globally tradable: Hard administrations and delicate administrations. In hard administrations, utilization can be isolated from creation. And delicate administrations can't be sent out and require a significant nearby presence.

There are two kinds of techniques: worldwide procedure and a multi homegrown methodology. In worldwide system, firms endeavor to profit from the homogeneity of clients taste across nations through normalizing administration offering. Interconnections among business sectors empower these organizations to look for economies of scale on a worldwide level, and that implies the improvement of worldwide activities the same way as in the market of beginning, transmission of information from the parent organization to subsidiary organizations, and upkeep of the public character by having individuals from the nation of beginning fill the board posts in global tasks. Administration firms that utilize worldwide procedure favor full-control section modes to accomplish elevated degree of coordination.

Firms that take on a multi homegrown worldwide methodology contend essentially at the neighborhood level. The nearby auxiliaries appreciate independence with their own business and creation frameworks. These organizations are alright with shared-control modes, as joint endeavors, which permit adaptability. Their association is poly-driven Global tasks are considered to be a gathering of free organizations, assessment not set in stone at a neighborhood level, with restricted correspondences between the parent organization and the auxiliaries. All in all, administration firms with a multi homegrown methodology depend more on imparted control modes than firms to a worldwide procedure.

To make sense of the internationalization of the firm, a few creators recognize cautious thought processes, to safeguard current business sectors, and hostile intentions, to take advantage of new business sectors. Cautious intentions, "following the public client" and "following the contenders or pioneers".

Many help firms follow internationalizing fabricating organizations to offer their administrations in abroad business sectors. Client supporters are supposed to choose high-control modes.

Banking, protection, counseling, lawful administrations are instances of this sort of internationalization thought process.

Entirely possessed auxiliaries empower firms to answer contenders' activities rapidly, administration firms select a full-control mode.

Spearheading administration firms come up short on information on the neighborhood market, to adjust the dangers and to profit from being the "main mover." They are bound to look for cooperative arrangements to get to outer assets and to conquer their risk of unfamiliarity. In outline, a company's inspirations will impact section mode choice as follows:

Capital-serious administrations, like energy, power, and lodgings, are supposed to show internationalization designs like those of assembling firms. Firms are not liable to commit a high measure of assets to go into nations under vulnerability.

Concerning information concentrated administrations, bookkeeping, the executive's consultancy, promoting and publicizing unfamiliar direct speculation doesn't suggest a huge interest in the host country. A solitary office might address a company's presence in another country. The information serious administrations require interests in HR, as such administrations rely upon the abilities, ability, and information important to fulfill purchasers' assumptions. The immaterial idea of information escalated administrations makes it difficult for clients to assess the help delivered. Thusly, customized administration and treatment are the best types of developing and separating the company's administration. This can be accomplished by get-together data about clients. Hence, it is normal that information escalated administration firms show internationalization designs unique in relation to assembling firms, factors influencing passage mode decision may likewise be unique. Specifically, essential inspirations might assume a more significant part in information serious administrations than in capital-concentrated ones. (Esther Sanchez-Peinado, 2007).

### **SERVICE FIRMS' INTERNATIONAL ENTRY-MODE CHOICE**

After a firm chooses to enter a specific unfamiliar market, it should pick a method of section.

The decision of the right section mode for a specific unfamiliar market is the most basic choice in global promoting. The picked mode decides the degree to which the firm engages in creating showcasing programs in the unfamiliar market, how much control the firm appreciates over its promoting exercises, and how much it prevails in unfamiliar business sectors. Passage mode decision is viewed as a "wilderness issue" in global showcasing.



## E-Commerce Effect on the Entry Modes of Service Firms

Past examinations looking at passage mode decision have zeroed in solely on assembling firms.

Distributed examinations on the global tasks of administration firms don't straightforwardly resolve the subject of section mode decision. The couple of studies that look at the issue give restricted bits of knowledge, since section mode decision isn't the focal point of their examinations.

Consequently, existing information overall from the assembling area. Nonetheless, ongoing writing recommends that help firms vary from assembling firms and face remarkable difficulties in their unfamiliar market section and development process.

Conventional section mode examinations would in general focus on assembling worldwide enterprises. Also, as a result of a few unduly prohibitive presumptions related with ordinary TCA. As the regular TCA approach really addresses an extraordinary instance of this worldview, managing circumstances wherein interior association costs are high and non-TCA motivations to coordinate are low. The connection between resource particularity and section mode decision is directed by various variables, when expenses are low or the capacity to coordinate is high, firms are probably going to lay out full-control adventures. Yet, as expenses heighten or capacity decreases, low-particularity firms will search out shared-control adventures. Sensible premises recommend that significant variety in section mode decision is caused when low-particularity firms are squeezed to share control.

It is much of the time guaranteed that numerous worldwide showcasing choices are made by directors on a nonsystematic premise. In any case, the discoveries of a ton of studies exhibit that supervisors really do pursue decisions in light of contemplations of long-haul effectiveness as nonsystematic doesn't mean wasteful. Supervisors in the help area can accept valuable bits of knowledge as when they enter an unfamiliar market, TCA gives a structure inside which these options can be assessed. All expenses and advantages of getting control in a particular circumstance should be painstakingly weighed against one another. The most proficient mode is the one with most elevated benefit-to-cost proportion.

Then again, logical ramifications propose that a shallow assessment of connections could hazardously delude.

The current speculations could be utilized, with appropriate variations, to research issues connecting with global assistance ventures. The exchange cost is all around relevant. Be that as it may, to be more powerful as a hypothesis of passage mode decision, it should be changed considering multiple factors; (1) Firms assess elective game plans utilizing a more extensive scope of reconciliation costs than recently perceived. Albeit these expenses don't be guaranteed to require be thought to be high in all circumstances. (2) Firms will generally assess the benefits of control in view of other non-TCA related contemplations also. To be sure, non-TCA thought processes, joined with low mix costs, appear to make sense of why many help firms lay out full-control modes, even in low resource explicitness circumstances. (Rao, 1993)

## COMPETING FOR EMERGING MARKETS

The section of MNEs into unfamiliar business sectors is influenced by the home and host country's institutional climate. The host country's institutional climate affects passage mode decision, particularly in creating world business sectors with more fragile institutional oversight, administrative limit and low straightforwardness. While entering an unfamiliar market, Firms can go into different kinds of permitting arrangements with a neighborhood accomplice, procure a nearby business, or enter as an entirely claimed auxiliary or value speculations as joint endeavors or greenfield, brownfields, or acquisitions require a significant responsibility from a company's base camp, non-value ventures such legally binding modes as permitting, Research and development agreements, and partnerships, require extensively less responsibility.

Exchange costs financial matters (TCE) has been the predominant hypothetical focal point to evaluate passage mode decision. In view of an assessment of exchange level risks (for example resource explicitness, conduct vulnerability, and recurrence),

The asset needs inside the host country contrasts across countries and the ramifications of this on passage procedure. Joining overview and authentic information, by Meyer et al. to test their model across four arising economies (specifically: India, Vietnam, South Africa, and Egypt) with altogether different institutional conditions, observed that unfamiliar market contestants are bound to pick acquisitions and green field in nations with more grounded institutional conditions. (MURPHY)

## MARKET ENTRY STRATEGIES TO EMERGING MARKETS

There is no question that globalization is a reality and that it will keep on influencing organizations and their promoting exercises giving worldwide market open doors and raising worldwide cutthroat dangers.

The world is changing with a speed which has never been seen. The business climate these days is portrayed by expanding intricacy, vulnerability, and brokenness. Strengthened worldwide rivalry. Worldwide rivalry is developing and will keep on expanding. As per the seriousness guide 2007-2050 the central concerns with high effect on world intensity climate during the following thirty years are the accompanying:

- Protectionism.
- Administration and reconciliation.

## **E-Commerce Effect on the Entry Modes of Service Firms**

- Work cost contrasts.
- The innovative separation vanishes.
- China, India, and Russia as innovative powers.
- Environmental change influences monetary assets

The gamble levels of entering unfamiliar business sectors are high. To stay away from unreasonable market disappointments firms ought to painstakingly break down unfamiliar market climate before the decision of market passage mode. This is basic for developing business sectors. Legally binding passage modes are ideal for enormous ventures. Turnkey projects give a potential chance to enter an unfamiliar market by adjusting to the intricacy of the climate.

The course of turnkey projects advancement could be utilized by financial backers in developing business sectors for long haul purposes to conquer the irregularity of task business.

It would be imperative to explore the potential open doors for changing the course of turnkey projects advancement into productive business. (Nikolov, 2016)

## **TECHNOLOGY AND MARKETING PROFILE EFFECT**

Unfamiliar market passage (FME) is a perplexing choice for any firm, which includes whether to enter unfamiliar business sectors, which nation, or nations to enter and in what succession, either to think or to differentiate. For each market chosen, firms should address the inquiry which mode to use in entering these business sectors. The FME decision is the main parts of worldwide showcasing the executives.

Section mode decision has suggestions for the degree of asset responsibility and may influence the presentation and endurance capability of an unfamiliar endeavor. This said, there is still no brought together hypothesis to direct supervisors in their decision of FME mode. Adding to this there have been not many factual examinations concerning section mode and a large part of the current writing attempts to accommodate different passage mode inside a solitary hypothetical structure, exchanges cost, which is restricting.

Concerning unfamiliar market passage and advancement in the financial matters writing. The general recommendation is that organizations should have some type of benefit assuming they are to contend in a new unfamiliar climate against homegrown occupants with neighborhood information. The idea of what are presently called the possession explicit or firm-explicit benefits of unfamiliar undertakings perhaps get from "innovation and advertising abilities, oligopolistic market design and conduct, overabundance administrative limit. In this part, we will address the job innovation and showcasing on FME mode decision.

Innovation and advertising have been connected straightforwardly to passage modes decision as showcasing and innovation serious organizations will favor the entirely claimed mode to other. A few promoting factors might impact the passage mode choice. In any case, the itemized measurable investigation of the specific idea of such relationship is yet absent. (Gannon, 2000)

## **E-COMMERCE AND LEVEL OF SERVICE DIGITALIZATION**

The degree of digitization impacts two significant choices in passage mode determination: (1) where to find the help creation stage for the objective unfamiliar market and (2) what level of control to practice over the unfamiliar subsidiary, a choice frequently impacted by the area of the help creation stage. The degree of digitization that a help act allows likewise influences how the assistance is created and conveyed. Since digitization has made more worldwide administrations and has enlarged the scope of internationalization modes accessible to support firms, customary perspectives on the internationalization of administrations should be increased (K.Sivakumar, 2004)

## **CONCLUSION**

The innovation interceded showcasing of administrations reclassified the systems for planning section mode procedures for administration firms.

This examination proposes that innovation is a significant component to think about in choosing passage mode. Because of innovation, distance is presently not a boundary to the worldwide promoting of administrations; some help firms can become worldwide all along, administration firms don't have to go through every one of the conventional strides of section mode determination, it is prescribed to integrate mechanical variables into the passage mode calculated system to represent the significant job of innovation in the showcasing of administrations in the present web based business climate. This paper inspect how innovation has reclassified passage mode ideas.

The net consequence of this paper is that there is a gathering of administrations that can't be made and dispersed electronically yet they can in any case utilize web-based business advancements to build the productivity of administration creation and

## E-Commerce Effect on the Entry Modes of Service Firms

conveyance. Likewise, the customary ideas of section mode should be stretched out to mirror the present web based business reality.

Advertisers ought to perceive the effect of the degree of digitization on section techniques. Advertisers shouldn't just consider entering the whole help act in an unfamiliar market yet in addition look at the essential advantages of entering just specific help tasks. Internet business innovations currently permit specific help cycles to be directed from a good way. Administrators ought to exploit the extra internationalization modes that web based business advancements have made conceivable.

Fractional advanced administrations benefit from the computerized transformation. As well as traveling to another country to serve nearby clients, fractional advanced help firms can rethink digitizable administrative center undertakings in unfamiliar business sectors.

We started this paper with the place that web-based business advances have made imaginative ways of promoting administrations abroad, notwithstanding the need to approve our model experimentally, further examination in a few different parts of the model is fundamental. Likewise with any theoretical depiction, significant subtleties frequently stay for additional examination. A model is that Web foundation and access fluctuate from one country to another and, surprisingly, inside a similar country. Another point is the effect of social contrasts on the electronic advertising of administrations.

Further examination ought to look at an all the more fine-grained investigation of individual computerized administration enterprises to inspect incorporate programming, film, music, paper, medical services, which can all be digitized (K.Sivakumar, 2004).

### REFERENCES

- 1) Esther Sanchez-Peinado, J. P.-B. (2007). Strategic Variables That Influence Entry Mode Choice in Service Firms. *Journal of International Marketing*, pp. 67-91.
- 2) Gannon, F. B. (2000, July). Does the Firm's Technology and Marketing Profile Affect Foreign Market Entry? *Journal of International Marketing*, pp. 12-36.
- 3) K.Sivakumar, I. E. (2004, July). The Impact of E-Commerce on entry-mode strategies of service firms .Aconceptual framework and research proposition. *Journal of international marketing*, pp. 46-70.
- 4) Lorraine Eden, L. D. (2010, winter). International Business,International Management, and International Strategy What's in a Name? *Int. Studies of Mgt. & Org.*, vol. 40,, pp. 54-68.
- 5) MURPHY, M. J. (n.d.). COMPETING FOR EMERGING MARKETS: A RESOURCE DEPENDENCE MODEL OF FOREIGN MARKET ENTRY MODE.
- 6) Nikolov, B. V. (2016, February ). MARKET ENTRY STRATEGIES TO EMERGING MARKETS: A CONCEPTUAL MODEL OF TURNKEY PROJECT DEVELOPMENT. *Serbian Journal of Management*, pp. 291-310.
- 7) Rao, M. K. (1993, July). Service Firms' International Entry-Mode Choice: A Modified Transaction-Cost Analysis Approach. *Journat of Marketing*, pp. 19-38.
- 8) Tadas Šarapovas, M. H. (2016). THE IMPACT OF MARKET-RELATED FACTORS ON THE CHOICE OF FOREIGN MARKET ENTRY MODE BY SERVICE FIRMS. *ORGANIZATIONS AND MARKETS IN EMERGING ECONOMIES* , pp. 34-49.



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## How to Increase Employee Correlation

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**EXECUTIVE SUMMARY:** Amana's procedure relies upon a long haul, maintainable improvement of its work by executing viable activity plans for overseeing and creating business that accomplishes its different objectives. Thus, top administration generally tries to give sound workplace to representatives just to ensure the steadiness of the association. Our exploration examines factors that influence worker relationships to the association. The last decision gives an unmistakable vision for the administration to in like manner foster their arrangements.

**KEYWORDS:** Amana, Insurance, HR, Employees, Teamwork, Learning and development, Support, Turnover.

### INTRODUCTION ABOUT AMANA

Amana was laid out by a union of notable organizations in the locale, as FAL Possessions Arabia Co. Ltd, FALCOM Monetary Administrations and Libano Suisse Insurance Agency, notwithstanding a gathering of trustworthy organizations and significant financial backers. Amana gives different items covering medical coverage, engine protection, travel protection, property protection, fire protection, marine protection, designing protection and other specific protection that covers the exercises of different business areas like industry, exchange, and administration. Amana has set showcasing and deals methodologies that manual for place the organization in a main situation on the lookout. Dealing with its certified and exceptionally experienced staff to cover all areas in KSA, we expect to Help clients in getting the best protection arrangements.

With respect to the workspace Amana offers its representatives and promising the potential up-and-comers a sound workplace that satisfies their requirements and wants to foster them capacities and expand their insight. We answer the requests and needs of clients to convey a tweaked administration that measures up to the assumptions of clients. To guarantee this, the organization doled out the devoted hotline number for client care call focus, where a group of specific staff gives the best arrangements and proposals to accomplish the most elevated level of consumer loyalty. Amana looks to get high trust with clients to accomplish their most noteworthy fulfillment. For this reason, the organization has laid out a specific cases office that oversee for all locales and made it conceivable to get claims at all branches across the Realm. Our central goal doesn't stop with offering clients the reasonable remuneration in briefest pass of time. It is a major guideline of the organization to guarantee congruity of client's action and that the client not experiencing any monetary misfortune, which impact on his day-to-day business.

The organization's vision is to be one of the main insurance companies in Saudi Arabia that gives agreeable protection administrations through offering the best items and arrangements that take care of its client' needs.

The organization's central goal is to give quality protection arrangements and items, give trust and added worth and fabricate a drawn-out connection with its clients across the Saudi Arabia.

Amana's technique relies upon a long haul, feasible improvement of its work by executing viable activity plans for overseeing and creating business that accomplishes its different objectives. This will empower the association to give a different scope of protection arrangements and items that matches the necessities and prerequisites of clients and furnishes them with saving and security for their business through successful gamble the executives.

The exploration will remember all the administration Capabilities for the association:

▪ **Planning:**

Top Administration setting the organization well defined plans that prompting accomplish organization objectives and coordinating with investors assumptions.

▪ **Organizing:**

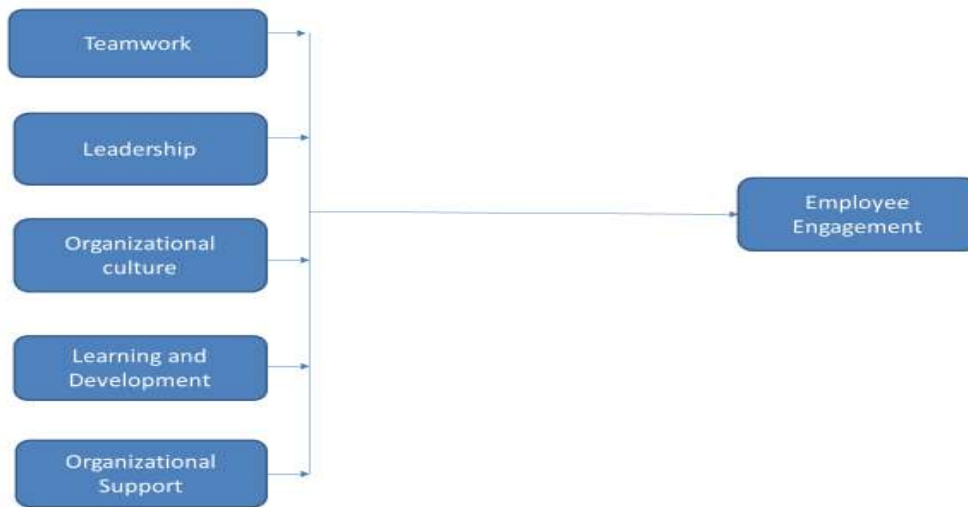
Allotting, appropriating, and orchestrating the fundamental targets for every office lining up with the organization objectives.

▪ **Leading:**

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Guide the representatives and supporting them to accomplishing the individual and company targets.

### ▪ Controlling:



Following up, Checking, contrasting, and doing the right activities.

We at Amana our association levels incorporate (Senior Administration, Center Administration, Senior and junior staff... and so on) which incorporates however are not restricted to the accompanying:

1. Executives (Senior Administration), who are answerable for setting vital targets and taking the essential choices in the association.
2. Middle Administration Level, who are answerable for getting the principal targets and flowing down to execution and dealing with the functional work and the specialized staff?
3. Supervisors, who are answerable for driving junior's workers and regulate the day today activity.

At Amana there is the accompanying different division business Improvement: Advertising and Deals, Specialized - Guaranteeing, HR, organization, money, and bookkeeping data innovation and hazard the board. Presently our items are in all districts inside KSA.

The political shakiness in KSA particularly after Yemen war, the progressions in guidelines and giving expenses. Protection field emergency expanded patterns of amusement and way of life which impact on representative relationship factors. The new and refreshed patterns in innovation and consistently to adapt to the most recent advancements in the IT and protection arrangements. KSA regulations including work regulations and SAMA guidelines this multitude of variables are vigorously influencing the exhibition of the organization and its monetary circumstance in an exceptionally terrible manner. This could be the most terrible time since the organization was laid out in November 2015.

### PROBLEM DEFINITION

As an OD Supervisor, I accept that the general culture of an association has a great deal to do with worker fulfillment and representative relationship, although accomplishing 100 percent worker connection is unreasonable, low worker relationship can make significant disadvantages an association.

The association deals with an enormous issue: The high turnover rate was seen for non-administrative levels as well concerning administrative positions, particularly with the takeoff of 48 workers left Amana in 2021, bringing about a turnover pace of 40.5% and 5% directors in 2023 YTD alone. I worked with different offices to figure out why there is an exceptionally low worker connection in the association.

Me as an OD Director and the CHRO fostered the accompanying issue explanation: "Deciding the factors that impact on workers' relationship to expanding the representative efficiency".

### 1. MAJOR QUESTIONS

MjRQ1: What are the factors that impact on representatives' relationship?

### 2. MINOR QUESTIONS

MinRQ1: Does Authority influence worker relationship?

MinRQ2: Does Correspondence influence worker relationship?

## How to Increase Employee Correlation

**MinRQ3:** Does Culture influence worker relationship?

**MinRQ4:** Does Proficient and self-awareness influence worker correlation

### 3. Conceptual Model

The proposed conceptual model of Employee Correlation figure,

### 4. Claims and Variables

**Claim – 1:** Further developing the Administration abilities and urge workers to zero in on their objective and accomplish organization objective.

**Variable:** Trust in pioneers: as a matter of fact, the single most noteworthy indicator of worker responsibility is their associations with their directors. I can't exaggerate this: with regards to connection, great administration is basic.

**Claim – 2:** Further developing the viable relational abilities and group assembling and playing clear parts, obligations and experts for the workers would work on the hierarchical correspondence.

**Variable:** Correspondence Start with great correspondence and ensure that the correspondence with representatives transparently, truly, and frequently will expand the drew in of workers.

**Claim – 3:** Working on the association and inward culture and lay out sound climate.

**Variable:** Culture - A positive corporate culture brings about blissful representatives who need to come to work each day. That, however, the better the way of life, the more productive the organization.

**Claim – 4:** Working on the remuneration and advantages strategies and techniques and pay scale.

**Variable:** Prizes and acknowledgment perceiving in a genuine and convenient way representative commitments and steady enhancements, most representatives say they would work harder if they were perceived more. The acknowledgment programs incorporate proper projects like long stretches of administration or worker of the month programs, thoughts settlements as well as casual projects like organization thanks cards. A clear-cut acknowledgment and prize framework permits businesses to really separate among great and terrible entertainers and tie acknowledgment and rewards straightforwardly to the way of behaving that is important for the progress of the association.

**Claim – 5:** Further developing the abilities stock, planning improvement plans and profession way.

**Variable:** Expert and self-improvement: The chance to foster new abilities and capacities means a lot to aggressive representatives. Most representative advancement happens hands on as new activities or obligations, however, could likewise incorporate provincial meetings, new understanding materials, or certificate courses. Keep the workers connected by figuring out how they might want to stretch and offering them fitting chances for development that way.

**Claim 6:** Having a reasonable obligation with strong sets of responsibilities and KPIs.

**Variable:** Responsibility and execution: Everybody needs to be important for a triumphant group. Individuals who perform well inspirational about themselves — and where they work. Yet, like any group, they need mentors who can give fair input. Quick recognition builds up wanted ways of behaving, and opportune analysis can assist with deflecting future issues, setting KPIs and doing customary development to make sure that the representatives lined up with the fundamental goals.

**Claim 7:** Having an unmistakable Hierarchical vision and targets that are divided among workers would further develop the representative relationship.

**Variable:** Vision and values: Drawn in representatives comprehend the 10,000-foot view and how they fit into it. A plainly imparted vision and basic beliefs give representatives something to lift. On the off chance that workers feel like a piece of an option that could be greater than themselves, they are considerably more prone to exceed everyone's expectations to add to that more noteworthy reason.

**Claim8:** Having viable corporate social obligations which impact on worker connection and increment representative relationship.

**Variable:** Corporate social obligation: Representative connection levels are high among workers who say they are pleased with the commitments their association has made to the local area. Fruitful organizations will often be profoundly spoken with their networks, focused on friendly exercises, and they urge workers to take an interest.

## LITERATURE REVIEW

### 1. The Impact of Employees Correlation on organizational Performance

The examination paper expresses that it tends to be viewed as that representative connection has turned into a top business need for senior chiefs and directors. 75% of those reviewed said that most workers in their associations are not exceptionally locked in.

## How to Increase Employee Correlation

A significant hole appeared in the perspectives on chief directors and center supervisors around here. Pioneers know that having a high-performing labor force is fundamental for development and endurance. They concede that a profoundly drawn in labor force can increment improvement, development, efficiency, and primary concern execution while lessening costs connected with recruiting and maintenance in exceptionally cutthroat ability markets. (Execution, 2013)

### 2. What creates employee correlation?

The exploration paper expresses that workers'- relationship factors manage association, professional success, clearness in correspondence, movement of assumptions, compelling administration, carrying out learning and Advancement, congrats or acknowledgment commitments.

The previously mentioned ten representative connection factors are components inside the work environment that "keep, draw in and center the most gifted representatives", it ought to be the mission of HR to establish a workplace that supports representative relationship as well as draws in likely representatives.

(Morris M. L., The Effect of Representative Commitment Factors and Occupation Fulfillment On Turnover Goal, 2008)

### 3. Exploring perceptions around employee correlation

The paper expresses that larger part accept that representatives need to assume a sense of ownership with their own relationship and as per concentrate on which tries to investigate discernments around worker connection, the importance of representative reviews and post-employment survey examiners and how these are probably going to come to fruition later. The review surveyed 133 of India's top associations, senior administration, and HR pioneers. However high as 86% respondents accept that representative connection seems to be an essential need and assumed a vital part in their association and see it as an urgent contribution to assess administrative execution. Nonetheless, just 49% of businesses accept this is really occurring in their organization. (Willis, Top administration's job significant in driving representative commitment, 2016).

### 4. Role of leadership and accountability as a main driver in employee correlation

The exploration paper expresses that examining position of authority in creating, supporting, and sustaining relationship, the concentrate again tracked down a particular hole among discernment and reality. It was seen that as 75% of the respondents concurred that worker relationship drives are driven from top administration including the President to entre levels. Over 94% of respondents feel that worker connection scores ought to be a piece of the administration key outcome regions and main consideration in key execution markers, yet just 38% concur this happens in their association. 14% of respondents were in outright understanding that representative relationship disseminations (Sapna Popli, 2016).

### 5. The Hierarchy of correlation model:

The exploration paper expresses that representatives need to work in the associations in which they track down importance at work. Scientists have likewise concocted another model they called "Order of relationship" which looks like Maslow's need progressive system model. In the reality there are fundamental necessities of pay and advantages. When a representative fulfilled these necessities, then the worker trying to advancement open doors and individual improvement, the opportunities for advancement and afterward authority style will be acquainted with the blend in the model.

At last, when all the above referred to ally level desires have been fulfilled the representative looks to an arrangement of significant worth importance, which is shown by a genuine feeling of association, a typical explanation, and a common feeling of significance at work. (Schooling P. b., December 2010)

### 6. The relationship between burnout and employee correlation

The exploration paper expresses that burnout has animated research on worker connection. We could characterize burnout as a disintegration of relationship with the gig. The perspective on these creators is that worker relationship is described by energy, inclusion, and viability. Contrary to this view, different creators see that connection is adversely connected with burnout, it is an autonomous and idea described by three aspects, to be specific power, commitment, and digestion at work.

(Psychol. vol.36 n.2 Johannesburg, Jan. 2010).

### 7. Internal Communications that creating organizational culture.

"The paper utilizes discoveries from interviews with advertising leaders that is connected with the job of inside correspondence in expanding and improving the representative relationship". The interior correspondence is vital in the association's prosperity, and it is considered as corporate interchanges capabilities which illuminates representatives about corporate changes. The inner correspondence fabricates culture of straightforwardness and trust among the board and workers. It characterizes representative connection as how much an individual is mindful and consumed in the presentation of their jobs.

## How to Increase Employee Correlation

The leaders recognized that up close and personal correspondence is best correspondence channel since it incorporates non-verbal signs that is non-verbal communication and looks and verbal signals that is Voice Tone. (Mishra, 2014).

### 8. Factors that are positively linked with correlation.

The paper talks about the essential ideas of worker connection and main considerations explained two factors that are emphatically connected with relationship in particular, power sharing, correspondence, the executives, and coaching ways of behaving, for example, giving certainty to devotees, giving job explanation and enunciation of vision which could be portrayed as motivational, visionary, unequivocal and group situated. Although reviews have uncovered significant impacts of noteworthy authority on worker connection, these impacts are normally interceded by elements like representative inspiration, work fulfillment, inner standing, worker association connections, and straightforward correspondence. (K.A.J., Jan. 2016.)

### 9. Relationship between employee satisfaction-correlation and the business-unit outcomes

The paper analyzes that worker connection and the specialty unit results referenced that considering 7,939 specialty units in 36 organizations, the review utilized meta-examination to check the relationship at the specialty unit level between representative fulfillment connection and the specialty unit results (return for capital invested) of consumer loyalty, efficiency, benefit, and representative turnover. Generalizable connections adequately enormous to have significant functional worth were found between unit-level representative fulfillment relationship and these specialty unit results. (The American Mental Affiliation, 2002)

### 10. COSTS OF EMPLOYEE CORRELATION

- Direct Expenses: Preparing, Publicizing, interview time, work testing, direction cost, absence of efficiency, new representatives handling, and foundations checks.
- Opportunity Expenses: lose open doors; postpone the running activities, staying at work longer than required with more significant salary rates to convey the venture on time, organization picture.

### 11. MANAGING EMPLOYEE CORRELATION

One administration choice for resolving the issue of representative relationship is further developing through taking on specific working environment conduct wellbeing rehearses that address administrative correspondence, work plan, asset support, working circumstances, corporate culture, and initiative style. Additionally highlighted are a few contextual investigations from bosses who measure and use representative connection information to further develop their work culture, hold representatives, and increment business monetary achievement.

### 12. THE IMPLEMENTATION OF AN EFFECTIVE RETENTION MANAGEMENT PROGRAM

The administration of representative relationship will have the best authoritative advantage when it focused on at empowering the connection of esteemed workers and works with the supplanting of less powerful representatives with more viable staff. A few basic rules ought to be considered to further develop fulfillment and consequently decrease the degree of worker relationship:

1. Plan a preparation and improvement plan for the representatives in the association at all work levels
2. Audit the association plan of the association to ensure that all positions are planned
3. Fabricate an administration improvement program to fortify the seat and incorporate the high potential workers that could be remembered for the undertaking and hold them
4. Working on the remuneration and advantages approaches and strategies and pay scale.
5. Plan exercises and group building programs and urge representatives to cooperating to accomplish organization goals.

## THEORETICAL FRAMEWORK AND RESEARCH DESIGN

### 1. INTRODUCTION

#### 1.1. SCOPE OF THE STUDY

This examination is assessing the variables influencing representative relationship, it is an applied quantitative exploration, the extension is to decide the elements contributing to this issue, and information will be gathered from our organization, which is a Protection firm.

#### 1.2. SIGNIFICANCE OF THE RESEARCH

For a supervisory crew, it would be important to check and approve the presence of representative connection issue and the factors cause this issue.

### 2. THEORETICAL FRAMEWORK

Factors influencing worker relationship today have become progressively complicated. The factors influencing worker connection are various and complex corresponding to one another. By the by, among every one of the potential variables influencing



## How to Increase Employee Correlation

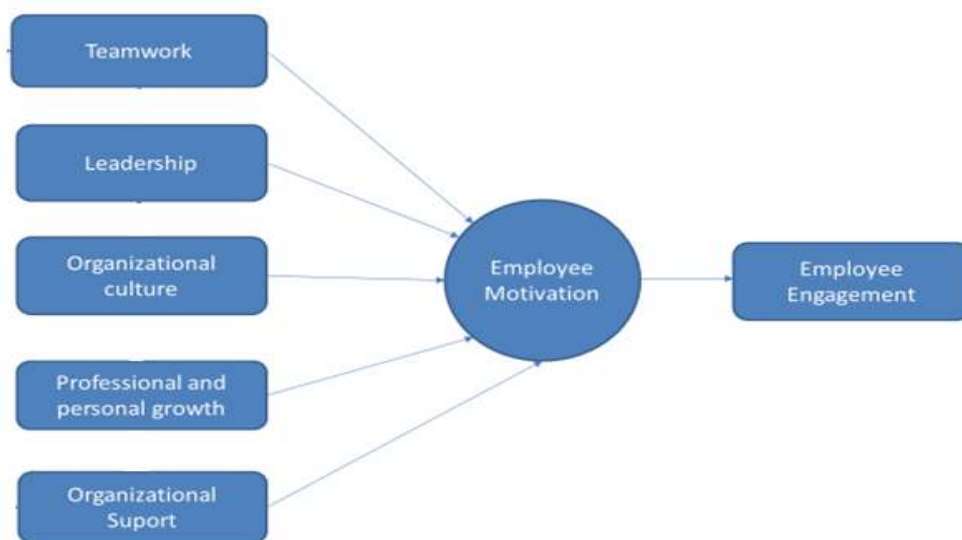
representative connection, the chose model recommends that factors Authority, Correspondence, Culture, Prizes and acknowledgment, Expert and self-awareness, Responsibility and execution, Vision and values and corporate social obligation. The proposed model for this Proposition delineated in the following figure.

### 3. Organizational Employee Correlation Model

Authoritative Worker Connection Model presented hierarchical cycle and factors affected on representative relationship. I pick the underneath proposed structure through which understanding, anticipate and control factors influencing worker connection in the public area in UAE (Singh, 2016)

#### The dependent variable "Employee Correlation":

An intricate cycle requires incorporation of different elements, every one of them has a special interaction, functionalities, culture, objectives information and business process. I consider representative connected with execution as "an outcome that is accomplished by invigorating workers' excitement for their work and guiding it toward association achievement. This outcome must be accomplished when bosses offer a certain agreement to their representatives that inspires explicit positive ways of behaving lined up with association's goals..."



#### The independent variables:

1. **Teamwork:** urge representatives to cooperate and line up with organization approaches and strategies to accomplish targets and planning teambuilding exercises and setting group goals notwithstanding private targets.
2. **Leadership:** Defining clear targets and Shrewd objectives by AMANA top administration and track down strategies for following up as indicated by time span and energy the representatives.
3. **Organizational Culture:** A positive corporate culture brings about blissful representatives who need to come to work each day. That, yet the better the way of life, the more productive the organization and establishing sound climate.
4. **Professional and personal growth:** Setting advancement programs for representatives and further developing the abilities stock, planning improvement plans and vocation way.
5. **Organizational support:** Movements of every sort carried out inside or remotely ought to be covered by authoritative help. Association ought to work with and deal with all of exercises that help the representative connection and expanding their relationship.

#### The moderating variable "Employee Motivation":

Is extremely basic variable as it is collected and aftereffects of all past exercises that assumes vital part in expanding worker relationship and furthermore decrease the turnover rate that leads organization acquiring benefit.

### 4. HYPOTHESIS

In the first place, there is a need to clarify understanding with the term of Speculations. It signifies "A formal testable assertion" or "any presumption, guarantee and proclamation about populace's qualities are called Theory".

Here we have created speculation explanation on the foundations of our hypothetical structure, and afterward we will attempt to confirmation these assertions.

## How to Increase Employee Correlation

**H1:** Whether there is positive connection among Administration and worker relationship expectations.

**H2:** Whether there is positive connection among Correspondence and worker relationship expectations.

**H3:** Most associations in all actuality do have clear new ability procurement systems. In any case, they need representative relationship systems.

**H4:** Representative relationship requires initiative responsibility through laying out clear mission, vision, and values.

**H5:** Whether there is positive connection among Culture and worker relationship aims

**H6:** Whether there is Positive connection among Remunerations and acknowledgment and representative relationship goals.

**H7:** Whether there is Positive connection among Expert and self-improvement and representative relationship aims.

**H8:** Upgrade worker relationship through two-way correspondence: Supervisors ought to advance two-way correspondence.

**H9:** Whether there is Positive connection among Responsibility and execution and worker relationship aims.

**H10:** Whether there is Positive connection among Vision and values and worker relationship goals.

**H11:** Whether there is Positive connection between corporate social obligation and representative relationship aims.

## DISCUSSION AND ANALYSIS

Creating worker connection survey, with test size of 78 of 135 populace, thinking about the accompanying basis:

- Junior or senior level worker.
- Works in Riyadh, Jeddah, and Khobar branches.

That finished to 42 % of workers are happy with referenced 5 ward factors.

Post employment surveys considered by existing representatives to be an indication of positive association climate.

## CONCLUSION

This exploration presents a reasonable system that workers relationship can be expanded through representatives' inspiration, which is straightforwardly relies upon Cooperation climate, initiative style, association culture, proficient and self-awareness through the make profession way and backing given by the association for its workers to accomplish objectives.

Post employment surveys give significant data about how to further develop enrollment interaction and it is considered as primary wellspring of maintenance plan.

Nonetheless, we should consider that our exploration is restricted to KSA Market. A few variables hadn't been covered through this examination, can be explored in additional investigations, as the impact of firm's size and the development rate, strict accepts on the gift based projects,

## REFERENCES

- 1) Crawford, E. R. (2010). Linking job demands and resources to employee correlation and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, , 95(5), 834-848.
- 2) Education, C. C. (December 2010 ). Employee Correlation: The Key to Improving Performance . *International Journal of Business and Management* , Vol. 5, No. 12; .
- 3) Education, P. b. (December 2010 ). Employee Correlation: The Key to Improving Performance . *International Journal of Business and Management* , Vol. 5, No. 12; .
- 4) Esther Sanchez-Peinado, J. P.-B. (2007). Strategic Variables That Influence Entry Mode Choice in Service Firms. *Journal of International Marketing*, pp. 67-91.
- 5) Gannon, F. B. (2000, July). Does the Firm's Technology and Marketing Profile Affect Foreign Market Entry? *Journal of International Marketing*, pp. 12-36.
- 6) K.A.J., I. &. (Jan. 2016. ). A CRITICAL REVIEW OF LITERATURE ON EMPLOYEE CORRELATION CONCEPT . *International Journal of Research In Social Sciences*, Vol. 6, No.3 .
- 7) K.Sivakumar, I. E. (2004, July). The Impact of E-Commerce on entry-mode strategies of service firms .Aconceptual framework and research proposition. *Journal of international marketing*, pp. 46-70.
- 8) Karanges, E., Beatson, A., Johnston, K., & Lings, I. (2014). Optimizing employee correlation with internal communication: A social exchange perspective. *Journal of Business Market Management (Freie Universitaet Berlin)*., 7(2), 329-353.
- 9) Lorraine Eden, L. D. (2010, winter). International Business,International Management, and International Strategy What's in a Name? *Int. Studies of Mgt. & Org.*, vol. 40,, pp. 54-68.
- 10) Mary Welch (Lancashire Business School, U. o. (2011). The evolution of the employee correlation concept: communication implications. *An International Journal*, Issue: 4, pp.328-346, .
- 11) Marylène Gagné, F. O. (2014, Feb 01). Employee Correlation From a Self-Determination Theory Perspective.

## How to Increase Employee Correlation

- 12) Mishra, K. B. (2014). Driving employee correlation: The expanded role of internal communications. . *Journal of Business Communication*, 51(2), 183-202.
- 13) Morris, M. L. ( 2008). *The Impact of Employee Correlation Factors and Job Satisfaction On Turnover Intent*. Mary Lynn Berry & Michael L. Morri.
- 14) Morris, M. L. (2008). *The Impact of Employee Correlation Factors and Job Satisfaction On Turnover Intent*. 2008 Mary Lynn Berry & Michael L. Morris .
- 15) Morris, M. L. (2008). *The Impact of Employee Correlation Factors and Job Satisfaction On Turnover Intent* . Mary Lynn Berry and Michael L. Morris .
- 16) Morris, M. L. (2008). *The Impact of Employee Correlation Factors and Job Satisfaction On Turnover Intent* . Mary Lynn Berry and Michael L. Morris .
- 17) Morris, M. L. (2008). *The Impact of Employee Correlation Factors and Job Satisfaction On Turnover Intent* . Mary Lynn Berry & Michael L. Morris .
- 18) MURPHY, M. J. (n.d.). COMPETING FOR EMERGING MARKETS: A RESOURCE DEPENDENCE MODEL OF FOREIGN MARKET ENTRY MODE.
- 19) Nikolov, B. V. (2016, February ). MARKET ENTRY STRATEGIES TO EMERGING MARKETS: A CONCEPTUAL MODEL OF TURNKEY PROJECT DEVELOPMENT. *Serbian Journal of Management*, pp. 291-310.
- 20) Performance, T. I. (2013). *a report by harvard business review analytic services* . England: harvard business review analytic services report.
- 21) Psychol. vol.36 n.2 Johannesburg Jan., S. j. ( 2010). Factors associated with employee correlation in South Africa. *SA Journal of Industrial Psychology*, Print version ISSN 0258-5200.
- 22) Psychol. vol.36 n.2 Johannesburg, S. j. ( Jan. 2010). Factors associated with employee correlation in South Africa. *SA Journal of Industrial Psychology*, On-line version ISSN 2071-0763 .
- 23) Rao, M. K. (1993, July). Service Firms' International Entry-Mode Choice: A Modified Transaction-Cost Analysis Approach. *Journat of Marketing*, pp. 19-38.
- 24) Sapna Popli, I. A. ( 2016 ). *Drivers of Employee Correlation: The Role of Leadership Style* . Sapna Popli,Irfan A. Rizvi.
- 25) Singh, N. A. (2016). Competing through employee correlation: a proposed framework. *International Journal of Productivity and Performance Management*, Vol. 65 Iss 6 pp. 831 - 843.
- 26) Tadas Šarapovas, M. H. (2016). THE IMPACT OF MARKET-RELATED FACTORS ON THE CHOICE OF FOREIGN MARKET ENTRY MODE BY SERVICE FIRMS. *ORGANIZATIONS AND MARKETS IN EMERGING ECONOMIES* , pp. 34-49.
- 27) The American Psychological Association, I. (2002). Business-Unit-LevelRelationshipBetweenEmployeeSatisfaction, EmployeeCorrelation,andBusinessOutcomes:AMeta-Analysis . *Journal of Applied Psychology*, No.2,268–279 .
- 28) Willis, T. W. (2015). *Top management’s role crucial in driving employee correlation* – . India: Towers Watson and Willis.
- 29) Willis, T. W. (2016). *Top management’s role crucial in driving employee correlation* . India: Towers Watson and Willis.



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## The Defense Policy of King Gia Long on Vietnam's Southwestern Border Region (1802-1820)



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**ABSTRACT:** After reuniting the nation in 1802, King Gia Long set out to build, develop and protect it. King Gia Long was particularly interested in the defense of the southwestern border area due to its geo-strategic location and significant influence on the security of the country's south. Consequently, King Gia Long planned and executed a defense policy in this critical border area to promote all the resources to serve Vietnam's defense and protection. Using specialist research methods, this article focuses on clarifying King Gia Long's defense policy on the southwestern border region during the period 1802-1820, order to firmly safeguard Vietnam's southern territorial integrity.

**KEYWORDS:** King Gia Long, defense policy, southwestern, border.

### 1. INTRODUCTION

King Gia Long prioritized national defence and border protection since the establishment of the Nguyen dynasty in 1802. In southern territory, King Gia Long had to carefully reinforce its national defense. The Nguyen dynasty was highly interested in the southwestern border area because it was a new land with a geo-strategic position near Chenla and Siam; thus, defence was prioritized. Based on the peculiar characteristics of the southern region, the Gia Long dynasty progressively developed a clear and consistent awareness of the Southwest border region's defense policy planning and implementation. With the vision of strategy, King Gia Long started the Nguyen dynasty's defense policy on this key border territory with the ideology of "rule the country, peaceful the people" when issuing an edict that: "He and officials fought hundreds of hard battles to get here. In times of peace, remember to in times of war, it is the true way to preserve the country and the people tranquil" (National History of the Nguyen dynasty, 2007a, p.811). As a result, King Gia Long tried to establish, consolidate, and promote resources for national defence in the southwestern border region as a basic component of national security. In particular, King Gia Long placed peace between the country and the people in a close, inseparable symbiotic relationship with Vietnam's national defense. For the 1802-1820 period, King Gia Long worked to strengthen the nation's security by focusing on economic growth, transportation, sociopolitical stability, and the construction and consolidation of military troops in the southwest frontier region.

### 2. RESEARCH METHODS

To study this issue, we employed a range of research methods including document collection, historical critique, and historical methods mixed with logical methods. Each research methodology was used at each step of the topic's completion, with different duties.

The document collection method was based on research orientation, content creation, and the entire research process. This allows us to gain knowledge from, refer to, and comprehend previously published materials with content pertinent to King Gia Long's defence policy in Vietnam's southwestern border region (1802-1820).

The method of historical criticism was used to classify the collected historical sources as direct or indirect historical documents, which allowed us to restore and properly perceive issues related to King Gia Long's defence policy in Vietnam's southwestern border region (1802-1820). This technique actively aids in determining the reliability, context, time period, and authorship of the historical records. This allowed us to assess the accuracy and objectivity of the historical content to rebuild the entire image of King Gia Long's defense policy on Vietnam's southwestern border region (1802-1820).

Throughout the process of this study, the historical approach combined with the logical method was used to study historical issues in birth, development, and end, in a particular circumstance, location, and period. As a result, we are able to provide an analysis, judgment, assessment, and generalization of the problem's historical process through historical sources to contribute to the complete restoration of King Gia Long's defense policy on Vietnam's southwestern border region (1802-1820). Two primary

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methods are used to address this issue.

We attempted to apply the aforementioned methods to this issue in a suitable manner to ensure the scientific and historical research perspective of the subject.

### 3. RESULTS AND DISCUSSION

#### 3.1. Perspectives and perceptions of King Gia Long in about the southwestern border region

Under Gia Long's reign, the Southwestern border region of Vietnam held a key position in terms of defense, corresponding to the territory of Gia Dinh, Dinh Tuong, Vinh Thanh and Ha Tien Trans and the Southwestern Sea of Vietnam. Because of their physical placement along the lengthy boundary line on Vietnam's southwestern face, these towns played an essential strategic role in the Nguyen dynasty's southern defense policy.

During the first 20 years of the nineteenth century, while the southern part of Vietnam entered the stage of promoting land reclamation and opening, the southwestern border region played a unique geo-strategic role with a frontline position to prevent foreign countries from sending soldiers to invade (Vu Duc Liem, 2016). Under Gia Long's rule, this area was discovered late and contained a lot of fallow land but was poorly populated. In addition, it was a place where political, diplomatic, and military instability frequently arose between Vietnam and its neighboring nations, such as Chenla and Siam.

From the time he raised up the Nguyen family's revival until he established the Nguyen dynasty (1802), King Gia Long always considered Gia Dinh to be a very important land. The Gia Long dynasty regarded the southwestern border region as a "important border" site, "land of prosperity," "land of career development," and "fundamental land" in King Gia Long's early days of creating a career. Consequently, it has significant meaning and importance in terms of defense strategies. According to King Gia Long once confirmed that Gia Dinh land was not only a very important place but also very rich because "since the rise of the army until now, the army's food has been taken there..." or "Gia Dinh has fertile land, the first lords expanded it for less than a hundred years, but the army was strong and wealth was abundant..." (National History of the Nguyen dynasty, 2007a, p. 537, 559, 946). Therefore, when issuing edicts regarding the South, King Gia Long always mentioned and underlined the significance of areas on the southwestern border such as Chau Doc, Ha Tien, Tran Dinh (Dinh Tuong), Vinh Thanh, Phien An for the country's southern defense.

From the beginning of the Nguyen dynasty, King Gia Long dispatched the Minister of Military Affairs Le Quang Dinh study books, maps of the entire country, citadels, palaces, towns, forts, and posts from Lang Son to Ha Tien to clearly understand the country's geography and territory, particularly its southwestern border region (Le Quang Dinh, 2005). King Gia Long issued an order that "must record all hills, mountains, roads, rivers, seas, canals, bridges, markets, customs, local products, and population of the country" (National History of the Nguyen dynasty, 2007a, p. 684) as a foundation for national policy planning. King Gia Long gradually recognized the importance of strategic locations on the southwestern border in terms of national sovereignty and territorial integrity of the Fatherland based on the special characteristics of nature, residents, and socio-economic of Gia Dinh region.

With the vision of a king who founded the country, King Gia Long recognized that "Gia Dinh's terrain was vast..." and "...sent his court to carefully discuss the work to preserve the territory firmly." (National History of the Nguyen dynasty, 2007a, p. 916). At the same time, King Gia Long also said that: "The role of Chau Doc and Ha Tien was no less important than that of Bac Thanh" (National History of the Nguyen dynasty, 2007a, p. 946).

On the other hand, according to King Gia Long, "Ha Tien was a place in the southern border area and played an important role in providing information on the border" (National History of the Nguyen dynasty, 2007a, p. 804), implying that "Ha Tien was an important place outside the border." (National History of the Nguyen dynasty, 2007a, p. 821). In an 1819 proclamation of the Vinh Thanh people, King Gia Long stated, "Your town was on the border, as a hedge for the country. It was genuinely a location of conflict when the army initially rose up" (National History of the Nguyen dynasty, 2007a, p. 985).

Furthermore, the location adjacent to the territory and territorial sea of Chenla and Siam affirmed the importance of the southwestern border region in the defence and foreign policy of the Gia Long dynasty. With the function of "an important place in the south of Vietnam" (National History of the Nguyen dynasty, 2007a, p. 882), King Gia Long concentrated on this border territory to reinforce the defensive system against foreign invaders and as a springboard to conquer Chenla aspires to achieve a strategic balance with Siam. Therefore, King Gia Long affirmed: "Gia Dinh Thanh and Phnom Penh were adjacent to each other, it was impossible not to be on guard." (National History of the Nguyen dynasty, 2007a, p. 798).

As a result of being cognizant of the southwestern border region's location, function, and strategic significance in diplomatic relations with Chenla and Siam, as well as inheriting the achievements of land exploration and establishing the sovereignty of the Nguyen lords, King Gia Long made every effort to devise a comprehensive defence policy aimed at supporting the cause of building, asserting sovereignty, and defending the integrity of the southwestern border region.

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### **3.2. The defense policy of King Gia Long on Vietnam's southwestern border region**

As early as 1802, King Gia Long placed a special emphasis on land reclamation, bolstering the army, and constructing military installations to manage and preserve the integrity of Vietnam's territory on the southwestern border. He sought to transform this vital border region into a center for political, military, and economic growth to secure resources for national security. King Gia Long's defense policy in the southwestern border region was created and implemented in various aspects ranging from administrative to economic to military in order to promote all resources for the sake of safeguarding the country and national security.

In terms of administration, since 1802, King Gia Long has turned Gia Dinh Phu into Gia Dinh Tran, led by Luu Thu, with the purpose of establishing a powerful administrative apparatus capable of controlling the Southwest region to protect the kingdom (National History of the Nguyen dynasty, 2007a, pp. 487, 488). Gia Dinh Tran had 5 Trans at the time, including Phien Tran, Bien Tran, Dinh Tran, Vinh Tran, and Ha Tien Tran, all of which were led by Tran Thu and assisted by Cai Ba and Ky Luc (Truong Thi Yen, 2017). In 1808, King Gia Long ordered the court to discuss the administration and defence of the country. Following that, the King organized the Southern region into units including "Thanh", "Tran", "Phu" - "Huyen", "Tong", "Xa" - "Thon" - "Ap". Accordingly, King Gia Long arranged the Southwestern border area of Gia Dinh Thanh to be distributed in 4 Trans areas including Phien An, Vinh Thanh, Dinh Tuong and Ha Tien. (National History of the Nguyen dynasty, 2007a, p. 716)

In terms of personnel, King Gia Long advocated the selection of martial generals who had served in the army during Trung Hung to secure the southwestern frontier areas. Tong Tran was the leader of Gia Dinh Thanh. Tran Thu was the leader of each Tran (National History of the Nguyen dynasty, 2007a, p. 803). King Gia Long made these preparations to establish a strong southwestern border area capable of defending the kingdom.

Furthermore, to boost the economic potential for national defense, King Gia Long pushed reclamation, village establishment, and plantation establishment throughout the southwestern border region (Truong Thi Yen, 2017). King Gia Long dispatched peasants and troops to clear the land, eventually establishing plantations, packed towns, and hamlets to transform bleak plains into rich fields and a thriving economy. All must be able to provide people, materials, and financial resources for border defense activities in the southwest.

King Gia Long completely rallied all classes of people to participate and aid with money and means of producing production for peasants, with the highest anticipation of stabilizing the general situation in the new area and creating unified administration (Cabinet of Nguyen dynasty, 1993, p. 154). In addition, the Gia Long dynasty used a variety of land reclamation methods without discriminating against any type of labor (Nguyen Quang Ngoc, 2017, p.275), and there were specific incentives (Vu Huy Phuc, 1979, p. 136) for them to participate in reclamation in the southwestern border region.

On the other hand, to expand and develop agricultural production, commerce, and defense, King Gia Long also promoted new excavation and dredging of rivers and canals with typical works such as the Thoai Ha canal, Vinh Te canal, and Bao Dinh canal. These projects have made significant contributions to linking natural rivers and ensuring smooth traffic flow across Gia Dinh Thanh. All of these have contributed significantly to the growth of production and defense in this border area.

Along with the growth of water transportation, King Gia Long promoted the development and extension of road transportation routes in the southwestern border region. He once issued an edict that: "Gia Dinh Thanh borders Chenla, roads are everywhere, so you need to discuss with each other to repair roads to create conditions for defense in the border" (National History of the Nguyen dynasty, 2007a, p. 935). Based on that policy, the Gia Long dynasty constructed the Thien Ly road from Gia Dinh to Ha Tien (Nguyen Duc Nhue, 2020, p.263). In addition, the Gia Long dynasty built and enlarged several roads and dikes linking inner and inter-towns, as well as Chenla, to service the development of new territories as well as military and national defense (Le Quang Dinh, 2005; National History of the Nguyen dynasty, 2007a).

The cause of reclamation, forming communities, plantations, hamlets, opening irrigation canals, and building roadways was an important part of the overall picture of southern region development. This played a significant role in national defense and the development of state sovereignty in the southwestern border area under Gia Long's reign. Along with the construction and consolidation of administrative, increasing, and growing economic resources, the Gia Long dynasty has gradually fostered the organization, construction, and growth of the national defence force in the Southwest border region. Gia Long worked on this subject synchronously in areas such as military organization, leadership personnel, and army weaponry, as well as the development of a system of important defensive facilities in this border area.

King Gia Long has pushed for the establishment of a defensive force in the Southwestern border region based on the central factor of people, with the military force serving as the core. In an 1806 proclamation, King Gia Long said, 'Defending the country and preserving the people was impossible without the army. Managing the military requires its own set of rules in order for people to live peacefully and the country to develop.' (National History of the Nguyen dynasty, 2007a, p. 651). In 1816, King Gia Long reminded the generals once more that: "Army organization was a big deal for the country; without an army, the country cannot

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be defended' (National History of the Nguyen dynasty, 2007a, p. 916).

This was the foundation of the Nguyen dynasty's military policy in recruiting troops, establishing units, creating military insignia, and arranging stationing zones based on "using local human resources" to capitalize on the advantages of "people and land" of the Southwestern border region. In actuality, King Gia Long primarily deployed the Trung Hung period army to maintain the southwestern frontier, led by great generals like as Le Van Duyet, Nguyen Van Nhan, Truong Tan Buu, Nguyen Van Truong, Nguyen Hoang Duc, Tran Van Nang, Nguyen Van Thoai, Nguyen Van Ton, etc.

In 1803, King Gia Long recruited a significant number of troops throughout Gia Dinh Thanh, depending on the situation, to assign and mobilize them to critical defence positions. King Gia Long recruited soldiers in the Southwestern border region in the regions of Gia Dinh Thanh to use their expertise with the water and terrain here. In terms of recruiting soldiers, King Gia Long continued to believe in employing warriors from the Trung Hung period in the form of "Huong soldiers" as well as recruiting new soldiers mostly from the internal Tran (National History of the Nguyen dynasty, 2007a, p. 793, 798). Regarding the organization of personnel management for the army, King Gia Long paid close attention to examinations, selection, appointment of generals, and the arrangement of job titles and positions according to the capacity and experience that there was no partiality.

Along with recruiting soldiers, King Gia Long prioritized arming the army with high-quality weaponry in the southwestern frontier region. The Gia Long dynasty classified weaponry based on the military insignia of the areas. King Gia Long delegated the duty of transferring weaponry to the Southern border areas to a high-ranking official (National History of the Nguyen dynasty, 2007a, p. 820). Gia Long has advocated keeping weaponry in Gia Dinh citadel to provide and distribute to the army in the Southwestern border region in order to assist the country's defense as soon as possible (National History of the Nguyen dynasty, 2007a, p. 808). The main weapons were battleboats, cannons of all types, guns of all types, sabers, iron knives, spears, wooden sticks, long-nosed knives, gongs, big drums, and small drums.

Based on the natural conditions of the Southwest River, King Gia Long paid attention to increasing warships for the Navy. In 1807, King Gia Long directed the allocation of 33 O boats to Gia Dinh Thanh for allocation to Trans. In 1808, Gia Long ordered Luu Tran of Gia Dinh Thanh to assign 10 warships to each Tran (National History of the Nguyen dynasty, 2007a, pp. 706-714). Next, King Gia Long dispatched Nguyen Duc Huyen, Pham Van Tuong, and Tong Phuoc Luong to Gia Dinh to supervise the building of 60 O and Le boats for military usage (National History of the Nguyen dynasty, 2007a, p. 740).

Along with building a strong military force with a full range of weapons and combat vehicles, King Gia Long advocated for the construction and gradual adjustment of a system of defense facilities in the southwestern border region to prevent the enemy, protect the people, and protect the integrity of Vietnam's territory. King Gia Long created a system of stations, river-posts, forts, strongholds, and citadels along the Southwestern frontier to assist national defense. To control the road and waterway areas bordering Chenla, King Gia Long established defense facilities such as the Kien Tuong citadel, Tran Nguyen post, Tuyen Uy post, Thong Binh post, Hung Ngu post, and Du Hung post (National History of the Nguyen dynasty, 2006, pp. 125, 126) from the south of Phien An town to the end of Dinh Tuong town.

In the defense posture of the Southwest border, king Gia Long purposefully positioned the border territory from Tran Vinh Thanh to Tran Ha Tien as the center of the defensive system. Defence facilities were developed along the border and far inland to form a multi-layered defense system against invader attacks.

On the surface of the Mekong river, King Gia Long continued to use the Nguyen Lords' defense system of "Tam Dao" with three defensive bases: Tan Chau river-post (on Gieng islet in the middle of the Mekong river), Chien Sai river-post (on the left bank of the Mekong river), and Hung Ngu river-post (on the right bank of the Mekong river). At the beginning of Gia Long's reign, the "Tam Dao" posture was still maintained and played an essential part in the Nguyen dynasty's defensive structure in the southwestern border region (Le Quang Dinh, 2005, p. 104).

By 1818, Tam Dao's location was altered to accommodate a defensive posture toward the frontier. As a result, King Gia Long relocated the Tan Chau river-post to the Long Son region (part of Cai Vung islet), the Chien Sai river-post to the north of the Hiep An river's mouth (today's Hong Ngu canal), and the Hung Ngu river-post to the south of the Hiep An river's mouth (Trinh Hoai Đức, 2005, tr. 219). Tan Chau and Chien Sai river-posts were finished by 1819 (National History of the Nguyen dynasty, 2007a, p. 981), but we havenot find anypapers that Hung Ngu river-posts was established at this time. All three new river-post were built in the border area, namely Tan Chau, Hung Ngu and Chien Sai to protect the Mekong river area at the beginning of the Tan Chau border (An Giang) and the end of the Dinh Tuong. King Gia Long strengthened the Dong Khau river-post (Sa Dec) behind Tam Dao, which has existed since the Nguyen lords (National History of the Nguyen dynasty, 2007a, p.166). The river post at Dong Khau formed a key backstop behind Tam Dao.

On the Bassac River route, from the previous period's military posts, King Gia Long re-planned major defense positions as well as expanding and strengthening new defense facilities stretching from the border to the south of the river. This defensive line was arranged with a series of very important defense facilities including: Da Phuc post, Chau Doc fort, Chau Giang post, Chau Giang

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river-post, Chu Phu post, Thuan Phiem river-post, and Dong Xuyen river-post, Tran Giang river-post, Tran Di river-post and My Thanh river-post.

On this line of defense, King Gia Long particularly erected Chau Doc into an important defensive and command center, with Chau Doc fort serving as a key base. Tran Thu of Vinh Thanh Luu Phuoc Tuong finished Chau Doc fort in 1816 with a total number of militiamen of around 7,000 individuals (National History of the Nguyen dynasty, 2007a, pp.917-941). Chau Doc Fort was constructed with great strength and was completely supplied with guns, troopshouses and warehouses. Chau Doc fort was identified by the Nguyen dynasty as "an important border base", therefore King Gia Long ordered 40 sets of cast iron cannons and ammunition, as well as men, to rigorously garrison it (National History of the Nguyen dynasty, 2006, p. 216). Chau Doc fort was considered the largest defense facility on the Southwest border before An Giang citadel was born under the Nguyen dynasty. For security and defense concerns, King Gia Long permitted Tran Thu of the Vinh Thanh to relocate his headquarters from Long Ho (Vinh Long) to Chau Doc station in 1817, in order to quickly address border matters. On the other hand, because of his significant location, Tran Thu of Vinh Thanh tutelary mandarin had to take on the role of "Protector of the national seal of Chenla" while simultaneously managing Ha Tien's "border matters" (Duong The Hien, 2019).

Along with Chau Doc, King Gia Long designated Ha Tien as a shield for the Gia Dinh Thanh. As a result, concentrating and expanding defensive facilities in Ha Tien became the primary strategy of the Nguyen dynasty. Based on the security foundations laid by the Mac family, the Nguyen lords, and the Trung Hung era, King Gia Long constructed a system of defense facilities on Ha Tien territory, transforming it into a critical defense sector on the southwest border.

The Nguyen dynasty consolidated and utilised earlier military infrastructure such as the Ha Tien ancient citadel, Giang Thanh rampart, Phu Dung rampart, Kien Giang ward, and Long Xuyen ward for defense reasons (National History of the Nguyen dynasty, 2006, p.28). According to Gia Dinh Thanh Thong Chi, Kien Giang Dao is a key area in the sea; the defensive system establishes circumstances for defending land and people. King Gia Long delegated command of the Kien Giang region to generals, with Kien Nghi warriors stationed on the coast. At the same time, the ambassadors of Siam and Chenla were welcomed to work. Furthermore, the Nguyen dynasty erected Long Xuyen Dao along the east coast of Ha Tien Tran to reinforce its mission to protect against maritime invaders (Trinh Hoai Duc, 2006, pp. 201-202).

In addition, King Gia Long built and reinforced Kim Du fortress, To Chau fortress, and Kim Du post to defend the enemy's navy and control the coastline. Phu Quoc Island was focused on by the Gia Long dynasty as an important base in controlling the Southwest sea of Vietnam. In 1816, King Gia Long established the Phu Quoc Fort with Le Van Y as Thu Ngu. At the same time, the king sent soldiers to form 10 Phu Cuong teams, and each team had 50 people. Each team was equipped with three large boats, three small boats, and all types of weapons. On the other hand, King Gia Long also exempted people from taxes on human and miscellaneous services if they could patrol the sea (National History of the Nguyen dynasty, 2007b, p.39).

Thus, by firmly pushing and enforcing defense policies, King Gia Long has established a tremendous source of synergy to optimize resources for national defense in the southwest border region. With these significant actions, King Gia Long laid a firm military foundation, contributing significantly to stability and peace on the southwestern frontier throughout the first 20 years of the nineteenth century.

## 4. CONCLUSION

King Gia Long's defense policy in the southern border area was a broad category in many fields that has been carried out on a regular basis with various levels in order to enhance resources to serve the cause of "keeping country and people's safety". This policy was reflected correctly and in accordance with the reality of Vietnam in the early 19th century in this important border area. King Gia Long steadily constructed the government and administrative apparatus to fulfill the objective of managing land and people, introducing the state's unified government system to the Southwestern localities. Economic resources were heavily pushed through reclamation; establishment of settlements and plantations; construction of canals, rivers, and roads; and the creation of a dynamic face for the new territory. Most significantly, King Gia Long efficiently constructed and developed a defense force with a powerful army and a system of solid defensive infrastructure to provide shock power on the frontlines of border protection. King Gia Long's sound defense strategies and instructions have substantially contributed to creating long-term firmness and stability on the Southwestern border region. The defence policy of King Gia Long in the Southwest border region was an important basis for successive Nguyen kings to preserve and improve the protection of Vietnam's territorial integrity against traditional enemies in Southeast Asia in the first half of the nineteenth century.

## REFERENCES

- 1) Cabinet of Nguyen dynasty. (1993). *Kham Dinh Dai Nam Hoi Dien Su Le, vol. 4*. Hue: Thuan Hoa Publishing House.
- 2) Duong The Hien. (2019). *The geopolitics - military factors of Chau Doc within the defense strategy on the Southwestern*



## The Defense Policy of King Gia Long on Vietnam's Southwestern Border Region (1802-1820)

*border of the Nguyen dynasty period 1802 – 1867.* AGU International Journal of Sciences, vol. 7, no. 1, pp. 35-41.

- 3) Lê Quang Đĩnh. (2005). *Hoang Viet Nhat Thong Du Dia Chi*. Hue: Thuan Hoa Publishing House.
- 4) National History of Nguyen dynasty. (2006). *Dai Nam Nhat Thong Chi*, vol. 5. Hue: Thuan Hoa Publishing House.
- 5) National History of Nguyen dynasty. (2007a). *Dai Nam Thuc Luc*, vol. 1. Ha Noi: Education Publishing House.
- 6) Nguyen Duc Nhue. (2020). *History of Vietnam's transport from the 10th century to 1884*. Ha Noi: Social Science Publishing House.
- 7) Nguyen Quang Ngoc. (2017). *The Land of the South of Vietnam, volume IV: From the beginning of the seventeenth century to the middle of the nineteenth century*. Ha Noi: National Political Publishing House.
- 8) Trinh Hoai Duc. (2005). *Gia Dinh Thanh Thong Chi*. Dong Nai: General Dong Nai Publishing House.
- 9) Truong Thi Yen (2017). *History of Vietnam, volume 5 (from 1802 to 1858)*. Hanoi Press: Social Sciences.
- 10) Vu Duc Liem. (2016). *Vietnam at the Khmer Frontier: Boundary Politics, 1802–1847*. Cross-Currents: East Asian History and Culture Review 5 (2): 534–64.
- 11) Vu Huy Phuc. (1979). *Learn about Vietnam's land regime in the first half of the 19th century*. Ha Noi: Social Science Publishing House.



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## Enhancing the Interest of Colleges of Education Students in Ghana in Music Theory: Strategies and Recommendation



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**ABSTRACT:** This article examines strategies to enhance the interest of College of Education students in music theory in Ghana. Music theory education is vital for fostering students' understanding of musical concepts, critical thinking, and creativity. However, factors such as prior musical experiences, teaching methods, curriculum design, and cultural influences can influence students' engagement with music theory. To address this, a qualitative study was conducted to identify effective strategies.

The findings underscore the significance of prior musical experiences and the importance of creating a supportive learning environment that embraces students' diverse musical backgrounds and interests. Active learning, technology integration, peer collaboration, and performance-based assessments emerged as effective approaches to motivate students in music theory.

The study recommends providing teacher training in active learning and culturally responsive pedagogies, revising curricula to include diverse musical genres and practical applications, fostering collaborations with community organizations to expand students' musical experiences, and launching awareness campaigns to highlight the benefits of music theory education.

Implementing these strategies requires collaboration among educational institutions, policymakers, music educators, and the wider community. By nurturing student interest in music theory, Colleges of Education in Ghana can cultivate a generation of music enthusiasts, educators, and advocates, contributing to the preservation and development of Ghana's rich musical heritage.

**KEYWORDS:** Music theory education, Student interest, Colleges of Education Strategies and recommendations.

### INTRODUCTION

Music education plays a crucial role in nurturing the holistic development of students, fostering creativity, and promoting cultural appreciation. However, there is a growing concern regarding the declining interest of college of education students in Ghana in the field of music theory. This lack of enthusiasm can have significant implications for the quality and effectiveness of music education programs, as well as the overall development of aspiring educators.

This article aims to explore strategies and provide recommendations to enhance the interest of college of education students in Ghana in music theory. By addressing this issue, we can empower future teachers to impart comprehensive and engaging music education to their students, ultimately enriching their learning experiences.

The decline in interest can be attributed to various factors, including limited exposure to diverse musical genres, inadequate resources and facilities, and the absence of targeted initiatives to promote music theory. Addressing these challenges requires a multifaceted approach that combines pedagogical strategies, curriculum enhancements, and institutional support.

Firstly, educators and institutions must prioritize the incorporation of a wide range of musical genres into the curriculum. By exposing students to a diverse array of music, including traditional Ghanaian music, classical compositions, and contemporary genres, we can foster an appreciation for different styles and broaden their musical horizons.

Secondly, the provision of adequate resources and facilities is vital to create an engaging learning environment. Access to musical instruments, recording studios, and technology-based tools can enhance students' practical experiences, allowing them to explore various aspects of music theory more effectively.

Furthermore, implementing targeted initiatives such as workshops, seminars, and guest lectures by renowned musicians and educators can inspire and motivate students. These events can provide valuable insights into the practical applications of music theory and expose students to successful role models in the field.

Collaboration between colleges of education and external music organizations, including professional orchestras, music festivals, and community ensembles, can also facilitate hands-on learning experiences for students. By establishing partnerships and engaging in real-world musical activities, students can develop a deeper understanding of music theory and its practical relevance.

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In conclusion, the declining interest of college of education students in Ghana in music theory poses a significant challenge to the quality of music education programs. To address this issue, it is essential to implement strategies and recommendations that promote exposure to diverse musical genres, provide adequate resources and facilities, and establish collaborations with external music organizations. By enhancing the interest and engagement of students in music theory, we can empower future educators to deliver comprehensive and enriching music education, fostering a lifelong appreciation for music among their students.

### **LITERATURE REVIEW**

#### **Introduction:**

Music theory education plays a vital role in developing a comprehensive understanding and appreciation of music among students. In the context of Colleges of Education in Ghana, it becomes crucial to enhance students' interest in music theory to cultivate a strong foundation for music education. This literature review aims to explore strategies and recommendations for enhancing the interest of College of Education students in Ghana in music theory. Promoting music theory education holds immense value for students in several ways. Firstly, music theory provides a framework for understanding the fundamental principles, structures, and elements of music. It equips students with the knowledge and skills necessary to analyze, interpret, and compose music effectively. Moreover, studying music theory fosters critical thinking, problem-solving abilities, and creativity, which are transferable skills applicable to various academic disciplines and professional domains.

The interest and engagement of students in music theory are pivotal for their overall musical development and future careers as music educators. When students are actively interested in music theory, they are more likely to pursue advanced studies in music, become passionate advocates for music education, and contribute to the growth of the music community in Ghana. Therefore, it is essential to explore effective strategies and recommendations that can enhance the interest of College of Education students in Ghana in music theory.

The objective of this literature review is to provide a comprehensive overview of the existing research, theories, and practices related to enhancing student interest in music theory within the context of Colleges of Education in Ghana. By analyzing the current body of knowledge, this review aims to identify effective strategies and practical recommendations that can be implemented to create a stimulating and engaging environment for music theory education. Ultimately, the findings of this literature review will contribute to the development of evidence-based approaches to enhance the interest and engagement of College of Education students in Ghana in music theory.

In the subsequent sections, we will explore the importance of music theory in education, examine the factors influencing student interest, review strategies for enhancing student interest, and propose recommendations based on the existing literature. By understanding the underlying factors and drawing upon successful practices, educators, policymakers, and music stakeholders can work together to create enriching music theory experiences that inspire and engage Colleges of Education students in Ghana.

### **THEORETICAL FRAMEWORK**

#### **Introduction:**

The theoretical framework of this literature review explores the factors influencing students' interest in music theory education, focusing on concepts of student interest, motivation, and engagement. A deeper understanding of these factors is crucial for designing effective interventions that enhance students' interest. Multiple theories and models offer insights into this complex interplay.

#### **Situated Motivation Theory:**

One key theoretical perspective is the Situated Motivation Theory, which asserts that the context of learning significantly impacts students' motivation and interest. By creating a relevant and culturally responsive learning environment for music theory education, students' interest can be heightened. Integration of practical application, real-world connections, and authentic musical experiences within the curriculum fosters a sense of relevance and increases student engagement (Deci & Ryan, 1985; Eccles & Wigfield, 2002).

#### **Self-Determination Theory (SDT):**

The Self-Determination Theory (SDT) emphasizes the role of intrinsic motivation in driving student interest and engagement. SDT suggests that autonomy, competence, and relatedness are vital for sustaining student engagement in music theory. When students have the freedom to make choices, develop skills, and connect meaningfully with others in musical experiences, their intrinsic motivation thrives (Ryan & Deci, 2000; Reeve, 2006).

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### **Expectancy-Value Theory:**

The Expectancy-Value Theory provides insights into how students perceive the value and expected outcomes of their engagement in music theory. When students find music theory personally meaningful, relevant to their goals, and believe in their capacity for success, their interest is positively influenced. Educators play a crucial role in creating an inclusive learning environment that values students' diverse musical backgrounds, thereby enhancing students' perceived values and expectations (Eccles & Wigfield, 2002; Wigfield & Eccles, 2000).

### **Flow Theory:**

Flow Theory suggests that students' interest and engagement in music theory can be heightened by experiencing a state of flow during musical activities. Engaging students in challenging yet achievable tasks, providing timely feedback, and encouraging a sense of accomplishment contribute to the state of flow. This, in turn, leads to increased interest and motivation in music theory (Csikszentmihalyi, 1990; Hidi & Renninger, 2006).

### **The Importance of Music Theory in Education:**

Numerous studies have demonstrated the cognitive benefits of studying music theory. For instance, a study by Forgeard et al. (2019) found that music theory training improves working memory capacity and cognitive flexibility. By engaging in activities such as reading sheet music, analyzing musical patterns, and composing, students develop critical thinking skills, problem-solving abilities, and mathematical reasoning (Mehr et al., 2021). Moreover, learning music theory enhances auditory processing skills, which are essential for language development and literacy (Tierney & Kraus, 2013).

Music theory education has been shown to have a positive impact on students' emotional well-being. Research by Lamont et al. (2018) reveals that learning music theory fosters self-expression, creativity, and emotional intelligence. By studying various musical elements such as harmony, melody, and rhythm, students gain the tools to express and regulate their emotions effectively. Furthermore, participation in music theory classes promotes a sense of accomplishment, self-confidence, and self-discipline (Hallam et al., 2015). This emotional engagement can have a profound effect on students' overall motivation and engagement in the learning process.

The study of music theory also offers significant social benefits for students. Collaborative music-making, often an integral part of music theory education, promotes teamwork, communication, and cooperation (Custodero, 2019). Students learn to listen actively, respond to each other's musical cues, and work together towards a common goal. Engaging in group performances and ensemble activities fosters a sense of belonging and community, leading to improved social skills and increased empathy (Schellenberg, 2015). Moreover, music theory education provides opportunities for cultural exploration and appreciation, exposing students to diverse musical traditions and promoting cross-cultural understanding (Wang et al., 2019).

In addition to its cognitive and academic merits, the study of music theory offers substantial social advantages for students. Collaborative music-making, often an integral component of music theory education, plays a pivotal role in cultivating teamwork, communication, and cooperation (Custodero, 2019). As students engage in musical collaborations, they develop the ability to actively listen to their peers, respond to subtle musical cues, and work harmoniously towards a shared musical objective. This experience not only enriches their musical skills but also enhances their capacity to collaborate effectively in diverse group settings.

Participation in group performances and ensemble activities, which are commonly intertwined with music theory education, contributes significantly to fostering a sense of belonging and community among students (Schellenberg, 2015). Through these collaborative endeavors, students forge connections with their peers and create a supportive environment where they can express themselves musically. This nurturing atmosphere not only boosts students' social skills but also cultivates empathy and understanding as they learn to appreciate and respect the diverse musical perspectives of their fellow classmates.

Furthermore, music theory education serves as a conduit for cultural exploration and appreciation, introducing students to an array of musical traditions from around the world (Wang et al., 2019). By exposing students to a diverse range of musical styles, genres, and practices, music theory education promotes cross-cultural understanding. This exposure encourages students to transcend cultural boundaries, fostering an environment of open-mindedness and respect for the richness of global musical heritage.

In conclusion, beyond its academic significance, the study of music theory offers a multitude of social benefits for students. Collaborative music-making enhances teamwork and communication skills, while participation in group performances nurtures a sense of community and empathy. Moreover, music theory education's role in promoting cultural exploration contributes to fostering cross-cultural understanding. Recognizing these social advantages further underscores the holistic impact of music theory education on students' personal growth and development.

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### **Factors Influencing Student Interest in Music Theory:**

Research suggests that students' prior musical experiences significantly influence their interest in music theory. A study by Anderman and Maehr (2014) found that students who had positive experiences with music, such as participating in choirs or playing instruments, showed a higher level of interest in music theory. Prior exposure to music performance and active engagement in making music create a foundation for students to appreciate and understand music theory concepts (McPherson & Welch, 2018).

Effective teaching methods play a crucial role in nurturing student interest in music theory. A study by Hickey (2015) highlighted the importance of engaging pedagogical approaches, such as hands-on activities, interactive exercises, and practical application of music theory concepts. When students are actively involved in the learning process, they are more likely to develop a genuine interest in music theory. Incorporating technology-based tools and multimedia resources can also enhance student engagement and motivation (Abril & Gault, 2018).

The design of the music theory curriculum can significantly impact student interest. Research by Hodges (2016) emphasized the importance of a well-structured and balanced curriculum that includes a variety of music genres, historical periods, and culturally diverse musical traditions. A comprehensive and inclusive curriculum promotes student engagement by exposing them to a wide range of musical experiences and contexts. Incorporating student-centered activities and project-based learning approaches can also foster a sense of ownership and relevance, increasing student interest in music theory (Kratus, 2017).

Cultural factors play a significant role in shaping student interest in music theory. Students' cultural backgrounds, beliefs, and values influence their perceptions and motivations toward music education. Research by Spruce (2016) highlighted the importance of culturally responsive teaching practices that acknowledge and integrate students' diverse musical traditions and experiences. Incorporating culturally relevant repertoire, incorporating local music styles, and providing opportunities for students to connect their own cultural identities with music theory can enhance interest and engagement.

Specific challenges and barriers faced by Colleges of Education students in Ghana regarding their interest in music theory have been studied. Research by Ofori-Atta (2015) identified several challenges, including limited access to musical resources and instruments, insufficient training and professional development opportunities for music educators, and a lack of emphasis on music theory in teacher training programs. Additionally, cultural factors, such as the dominance of traditional music styles over Western music theory, can impact students' interest and motivation to learn music theory.

### **Strategies for Enhancing Student Interest in Music Theory:**

The integration of student interest in academic courses is paramount for deeper learning and retention. Music theory, an intricate subject often perceived as abstract, is no exception. Recent educational research has been invested in uncovering diverse strategies to elevate student enthusiasm and active participation in this field. This literature review systematically examines these contemporary pedagogical strategies that foster an enhanced interest in music theory.

One of the transformative approaches of the last decade has been the gamification of educational content. Williams (2015) highlighted that the principles driving gaming, such as scoring, leveling-up, and competition, have proved beneficial in the academic sphere, especially in subjects like music theory. With the digital age in full swing, various applications and online platforms, notably "Music Theory Pro", have been introduced. These platforms turn learning from a task of memorization to an engaging quest, promoting active involvement and making theoretical concepts more tangible (Martin, 2017). Such platforms also allow for adaptability, tailoring lessons to individual student needs.

Another notable strategy is the marriage between music theory and other academic disciplines. Thompson & Lee's (2016) research indicated that students gain a holistic understanding of music when its theoretical components are interlaced with historical contexts. By examining the interplay between musical evolutions and significant historical events, students perceive music theory as not just a stand-alone subject but as an integral part of the human narrative. This enriched perspective fosters interest and deepens comprehension.

Traditional pedagogical models often championed passive receipt of information. However, the paradigm has been shifting. Davis (2018) underscored the benefits of active learning, especially in the realm of music theory. When students are tasked with creating their own compositions, they are thrust into the practical world of music, grappling with and applying theoretical concepts in real-time. This immersive approach results in a more profound grasp of music theory and a heightened appreciation of its real-world applicability.

In an increasingly globalized world, music education has begun recognizing the imperative nature of inclusivity. Brown & Rodriguez (2019) shed light on the enhancement of student interest when exposed to a diverse array of musical genres, ranging

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from classical to jazz, pop, and various global musical traditions. This inclusivity ensures that students find personal resonance within the subject matter, making music theory more accessible and relatable, while also broadening their cultural horizons.

The value of peer interaction in the learning environment has garnered much attention in recent pedagogical studies. Watson (2020) emphasized the profound impact of peer-led discussions on student engagement and comprehension in music theory. Such discussions foster an environment where students can elucidate, challenge, and reinforce concepts among themselves. The benefits of this method are twofold: it deepens understanding through repetition and diversifies perspective through collaboration.

As we tread further into the 21st century, the dynamism of music theory education demands innovative, responsive, and holistic pedagogical strategies. An integration of gamification, interdisciplinary studies, active learning, cultural inclusivity, and collaborative practices promises not only to enhance student interest but also to cultivate a robust, enduring appreciation for music theory in its entirety.

### **The Role of English Music Educators**

Historically, music education in England has been influenced by both national policy and international pedagogical trends. In recent years, there has been a renewed focus on the significance of music education in schools. Hallam (2015) affirms the importance of music in the curriculum by suggesting that it fosters intellectual, personal, and social development in students. Furthermore, national frameworks such as the National Plan for Music Education (NPME) in England have emphasized the value of music education, while also challenging educators to improve access and quality (Department for Education, 2011).

Music educators in England have been influenced by various pedagogical methods and approaches from around the world. Kodály and Orff methodologies, which originated from Hungary and Germany respectively, have had profound impacts on English music education practices (Phillips & Gromko, 2018). Additionally, Fautley and Savage (2018) noted a shift towards a more inclusive and diversified curriculum that integrates digital technology and global music genres. This transition is driven by the desire to make music education relevant to the 21st-century learner.

In the face of budget cuts and shifting educational priorities, English music educators have also taken on the role of advocates for their discipline. Spruce and Matthews (2017) highlight how educators, in partnership with institutions like the Music Education Council, work to demonstrate the broader societal value of music. They underscore the importance of community outreach, collaborations, and partnerships as strategies for building support for and maintaining the presence of music in schools.

Given the rapidly changing educational landscape, the role of professional development for music educators cannot be overstated. Burnard, Dillon, Rusinek, and Saether (2018) emphasize the need for continuous training, especially in the realms of technology and diverse musical traditions. They suggest that equipping educators with the skills and knowledge necessary to adapt, ensures a more inclusive and dynamic music education experience for students.

While the role of English music educators has historically been centered on pedagogy, it has now expanded to include advocacy, outreach, and continuous professional development. The future of music education in England will likely be shaped by policy decisions, technological innovations, and educators' ability to adapt to the diverse needs of their students. However, as Spruce and Matthews (2017) argue, the fundamental value of music as a transformative educational experience remains undisputed.

### **Extracurricular Musical Activities: Impact and Implications on Student Development**

Extracurricular musical activities, ranging from school choirs to band programs and beyond, offer students a rich tapestry of experiences outside the regular curriculum. These activities have increasingly attracted the attention of educational theorists and practitioners for their potential to contribute to holistic student development (Smith & Jones, 2016). While core academic subjects establish foundational knowledge, extracurricular musical engagements act as a nexus between students' academic, social, and personal realms.

Recent studies have illuminated the cognitive benefits derived from participation in extracurricular musical activities. Wilson and Patterson (2018) noted a direct correlation between consistent musical engagement and enhanced memory, attention, and spatial-temporal skills. Furthermore, students involved in these activities often demonstrate higher academic achievement, particularly in mathematics and language arts. This connection, as proposed by Thompson et al. (2019), might be attributed to the structural and functional brain changes induced by consistent musical practice, especially when initiated at younger ages.

Beyond the cognitive realm, extracurricular musical activities serve as an essential platform for socio-emotional growth. Engaging in group musical activities like choirs, bands, or ensembles nurtures team skills, collaboration, discipline, and resilience (Richardson & Hallam, 2017). Simultaneously, the act of performing can bolster students' self-confidence and provide a channel for self-expression, thereby improving their overall well-being. This positive influence on mental health becomes even more critical in the context of increasing adolescent mental health challenges in contemporary society (Carpenter & Davis, 2020).

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Extracurricular musical activities often expose students to a diverse array of cultural and historical contexts. By delving into global music genres and traditions, students develop a more profound cultural awareness and appreciation for global diversity (Ng & Hartwig, 2015). Moreover, public performances, collaborations, and musical outreach programs foster community building, both within educational institutions and the broader community. As students engage with diverse audiences, they become ambassadors of cultural exchange, thus promoting unity and mutual respect.

Despite the myriad benefits of extracurricular musical activities, they often face funding challenges and are sometimes overshadowed by more mainstream academic pursuits. However, as the body of research highlighting their significance continues to grow, stakeholders, from educational policymakers to parents, should recognize and support these activities. Not only do they offer immediate enjoyment and engagement, but they also shape students into well-rounded individuals, equipped with cognitive, socio-emotional, and cultural skills vital for the 21st-century global landscape

### **METHODOLOGY**

This study employs a qualitative approach to explore the strategies and recommendations for enhancing the interest of College of Education students in Ghana in music theory. Qualitative research is appropriate for capturing rich and nuanced insights, perceptions, and experiences of individuals in their natural settings. By utilizing qualitative methods, this study aims to gain an in-depth understanding of the factors influencing student interest and to identify effective strategies for fostering a deeper engagement with music theory.

### **PARTICIPANTS**

The participants in this study were College of Education students in Ghana who are currently enrolled in music theory courses or have completed music theory coursework in their academic program. Purposive sampling was used to select participants who represent a diverse range of musical backgrounds, experiences, and levels of interest in music theory. The sample size was determined by data saturation, ensuring that sufficient information is gathered to achieve the research objectives.

### **DATA COLLECTION**

Data was collected through semi-structured interviews and focus group discussions. Semi-structured interviews allow for flexibility and exploration of participants' perspectives, experiences, and opinions regarding their interest in music theory. The interviews were conducted in person or through video conferencing, depending on the participants' availability and preferences. Additionally, focus group discussions were conducted to promote interaction and collective exploration of the topic. The discussions encouraged participants to share their views on effective strategies and recommendations for enhancing student interest in music theory.

Interview and discussion guides were developed based on the research objectives and relevant literature. The guides included open-ended questions and prompts to encourage participants to reflect on their experiences, motivations, and challenges related to music theory. Probing questions were used to elicit further details and clarification.

### **DATA ANALYSIS**

The collected data was transcribed verbatim and analyzed using thematic analysis. The analysis process will involve several iterative steps, including familiarization with the data, coding, identification of themes, and interpretation of findings. Initially, the transcripts were read and re-read to develop familiarity with the data. Then, an inductive coding process was conducted to identify meaningful units of data and assign codes to capture key concepts and ideas. Codes were grouped into potential themes and sub-themes, which were refined through constant comparison and discussions among the research team.

The identified themes and sub-themes will be organized to create a comprehensive narrative that reflects the factors influencing student interest in music theory and the strategies for enhancing that interest. Findings will be supported by relevant quotes from the participants to provide rich and authentic evidence.

### **VALIDITY AND RELIABILITY**

To ensure the validity and reliability of the findings, several strategies were employed. The research team will engage in reflexivity, acknowledging their biases and preconceptions to maintain a balanced and open-minded approach during data collection and analysis. Member checking was conducted, allowing participants to review and verify the accuracy of the findings. Peer debriefing and external audits were sought to obtain critical feedback on the research process and analysis.

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### **Ethical Considerations:**

Ethical considerations will be adhered to throughout the research process. Informed consent was obtained from all participants, ensuring their voluntary participation and confidentiality. Participants' identities were anonymized in the reporting of findings to maintain their privacy. Additionally, ethical guidelines and protocols outlined by relevant institutional bodies and research ethics committees will be followed.

By employing a qualitative approach, this study aims to provide an in-depth understanding of the experiences, perceptions, and recommendations of Colleges of Education students in Ghana regarding their interest in music theory. The rich insights gained from this qualitative research will contribute to the development of effective strategies and recommendations for enhancing student interest in music theory within the Ghanaian context.

### **FINDINGS AND DISCUSSION**

The findings of this qualitative study provide valuable insights into the factors influencing student interest in music theory and the strategies for enhancing that interest among College of Education students in Ghana. Through semi-structured interviews and focus group discussions, participants shared their experiences, perceptions, and recommendations related to music theory education.

#### **Factors Influencing Student Interest in Music Theory:**

The analysis of the data revealed several key factors that influence student interest in music theory. Prior musical experiences emerged as a significant factor, with participants expressing that previous exposure to music positively influenced their interest and motivation to engage with music theory. Those who had received formal music education or had engaged in extracurricular musical activities demonstrated higher levels of interest. Conversely, participants with limited exposure to music expressed lower levels of interest and faced challenges in connecting with the subject.

Teaching methods and curriculum design were identified as crucial determinants of student interest. Participants emphasized the importance of active learning approaches, such as hands-on activities, group discussions, and practical applications, in enhancing their engagement and interest in music theory. They found these methods to be more effective than traditional lecture-based approaches. Furthermore, participants highlighted the need for a well-designed curriculum that integrates culturally relevant music, diverse musical genres, and real-world examples. Such an inclusive and diverse curriculum was perceived as more interesting and engaging, catering to the student's individual musical preferences and experiences.

Cultural influences played a significant role in shaping student interest in music theory. Participants noted that cultural perceptions and societal expectations about the value of music theory influenced their interest in the subject. In some cases, participants faced challenges in pursuing music theory due to the prioritization of other academic subjects or vocational training. This cultural context impacted their motivation and engagement with music theory.

The analysis of the data yielded valuable insights into the factors intricately linked to student interest in music theory. Foremost among these factors was the influence of prior musical experiences, emerging as a notably substantial determinant. Participants uniformly conveyed that their exposure to music in the past had a resounding impact on their inclination and motivation to delve into music theory. Those who had received formal music education or had actively engaged in extracurricular musical pursuits exhibited heightened levels of interest. Conversely, individuals with limited exposure to the realm of music expressed reduced enthusiasm, encountering difficulties in establishing a connection with the subject matter.

Equally consequential in shaping student interest were the adopted teaching methods and the design of the curriculum. The participants emphatically underscored the efficacy of active learning methodologies in fostering engagement and kindling interest. Techniques such as hands-on activities, dynamic group discussions, and tangible real-world applications garnered favor due to their effectiveness in comparison to traditional lecture-based pedagogies. A clarion call was made for a meticulously crafted curriculum—one that seamlessly integrates culturally pertinent music, embraces a diverse spectrum of musical genres, and interweaves practical instances from reality. Participants were unanimous in their assertion that such a curriculum not only heightens interest but also resonates with individual musical preferences, thereby cultivating an environment teeming with intrigue.

Intriguingly, the specter of cultural influences emerged as a potent player in shaping student interest in music theory. Participants cogently acknowledged the sway of cultural perceptions and societal expectations concerning the value of music theory. This cultural backdrop often posed challenges, with certain individuals encountering impediments to their pursuit of music theory due to the prioritization of alternative academic subjects or vocational training. This nuanced cultural context exerted palpable repercussions on their motivation and overall engagement with the subject matter.



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This confluence of factors underscores the intricate mosaic that forms the backdrop of student interest in music theory. Insights into the significance of prior musical experiences, the pivotal role of innovative teaching methods, and the resonating impact of cultural dimensions collectively enrich our understanding of the diverse triggers that influence student interest in the realm of music theory.

### **Strategies for Enhancing Student Interest:**

The findings revealed several strategies and recommendations for enhancing student interest in music theory. Active learning emerged as a powerful approach, enabling students to actively participate, experiment, and explore music theory concepts. Participants expressed a preference for hands-on activities, such as composing and performing music, as they found these experiences to be engaging and meaningful. Incorporating technology tools, such as music notation software and online resources, was also identified as a way to enhance student interest and provide interactive learning experiences.

Peer collaboration and group work were perceived as effective strategies for fostering student interest in music theory. Participants highlighted the benefits of engaging in ensemble performances, group discussions, and collaborative projects. These activities not only enhanced their understanding of music theory but also promoted social connections and a sense of community among the students.

Performance-based assessments were deemed valuable in maintaining student interest and motivation. Participants appreciated the opportunity to apply their knowledge in real-world contexts, such as recitals or showcases. They found these assessments to be personally rewarding and reinforced their interest in music theory.

The findings have unveiled an array of strategies and recommendations that hold the promise of enriching student interest in music theory. Among these, active learning has emerged as a potent and transformative approach, granting students the agency to immerse themselves in music theory concepts actively. Through hands-on activities, like the composition and performance of music, participants found themselves not just engaged, but deeply immersed in experiences that they deemed both captivating and profoundly meaningful. Additionally, the integration of technological tools, such as music notation software and online resources, surfaced as a catalyst in kindling student interest by fostering interactive and immersive learning encounters.

Peer collaboration and group work emerged as strategic maneuvers that garnered substantial acclaim in elevating student engagement in music theory. Participants lauded the inherent benefits of participating in ensemble performances, engaging in group discussions, and embarking on collaborative projects. These collaborative ventures not only bolstered participants' comprehension of music theory but also sowed the seeds of robust social connections and a palpable sense of community among students, thereby effectively enhancing their interest in the subject.

Another notable avenue that garnered resounding consensus among participants was the implementation of performance-based assessments. Such assessments resonated deeply with students as they provided a tangible channel to apply their acquired knowledge in real-world scenarios, ranging from recitals to showcases. Participants celebrated these assessments not only for their personal gratification but also for the manner in which they fortify their connection to music theory, thereby serving as a potent means to reinforce and sustain their interest.

In the broader tapestry of enhancing student interest in music theory, these findings offer a wealth of strategic insights. Active learning methodologies underscore the importance of experiential engagement, technology surfaces as a catalyst for interactive learning, peer collaboration cultivates a sense of community, and performance-based assessments anchor students' enthusiasm. These collective strategies present a roadmap that educators and institutions can traverse to create a stimulating environment, one that resonates with students and propels their fascination with music theory forward.

### **Recommendations for Enhancing Student Interest in Music Theory:**

Based on the findings from the literature, the following recommendations are proposed to enhance the interest of College of Education students in Ghana in music theory:

**Strengthen the Music Curriculum:** The music curriculum in Colleges of Education should be revised to prioritize the inclusion of music theory components. This can be achieved by allocating adequate instructional time to music theory topics, ensuring a balance between practical and theoretical aspects, and incorporating culturally relevant repertoire. A comprehensive and well-structured curriculum will provide students with a solid foundation in music theory and foster their interest in the subject.

**Provide Adequate Resources:** Colleges of Education should strive to provide access to musical resources and instruments, including sheet music, textbooks, and technology tools. Ensuring that students have the necessary resources to engage with music theory will enhance their interest and facilitate hands-on learning experiences. Collaboration with external organizations and partnerships can be explored to acquire additional resources and support for music education.

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**Enhance Teacher Training:** Professional development programs for music educators should focus on enhancing their pedagogical skills and knowledge of music theory. Teachers should receive training in effective teaching strategies, such as active learning, technology integration, and peer collaboration, to engage students in music theory. Additionally, providing opportunities for teachers to develop their own musical skills and deepen their understanding of music theory will positively impact their ability to inspire and engage students.

**Promote Cultural Relevance:** Emphasize the integration of Ghanaian traditional music and cultural elements within the music theory curriculum. Recognizing and valuing the rich musical traditions of Ghana will foster students' sense of identity, pride, and connection to the subject matter. Incorporating local musical examples, language, and performance practices will increase the relevance of music theory education for Colleges of Education students.

**Policy Implementation:** The government and educational authorities should prioritize the importance of music theory education in Colleges of Education by implementing policies that support its inclusion in the curriculum. This can include allocating dedicated funding, establishing standards for music education, and creating opportunities for collaboration and sharing of best practices among institutions. Policy support is essential for ensuring the sustainability and quality of music theory education in Ghana.

### **Future Research Directions:**

To further explore the effectiveness of the recommended strategies, future research can focus on the following areas:

**Long-term Impact:** Conduct longitudinal studies to evaluate the long-term impact of enhanced music theory education on Colleges of Education students. Assessments can include measuring their continued engagement in music-related activities, career choices in music education, and the transferability of music theory skills to other academic domains.

**Teacher Perspectives:** Investigate the perspectives and experiences of music educators in Colleges of Education regarding the challenges and opportunities in teaching music theory. Understanding the teacher's role and their perceptions of effective strategies can inform targeted professional development programs and curriculum design.

**Student Motivation and Engagement:** Explore the factors that influence student motivation and engagement in music theory specifically within the Ghanaian context. Investigate the role of cultural factors, personal experiences, and aspirations in shaping student interest in music theory and identify effective strategies for promoting sustained engagement.

**Impact of Technology:** Examine the impact of technology integration in music theory education for Colleges of Education students in Ghana. Investigate the effectiveness of specific technology tools and applications in enhancing student interest, engagement, and learning outcomes in music theory.

By addressing these research areas and implementing the recommended strategies, Colleges of Education in Ghana can enhance student interest in music theory, promote a rich music education experience, and nurture future music educators who are well-equipped to inspire and educate the next generation of musicians.

This literature review provides valuable insights into enhancing the interest of College of Education students in Ghana in music theory. The key findings demonstrate the significance of promoting music theory education and its numerous benefits for students in the cognitive, emotional, and social domains. By engaging with music theory, students develop critical thinking skills, and creative expression, and enjoy a sense of community and collaboration.

The factors influencing student interest in music theory have been examined, including prior musical experiences, teaching methods, curriculum design, and cultural influences. Recognizing these factors is essential for addressing specific challenges and barriers faced by Colleges of Education students in Ghana, thereby fostering a supportive and engaging learning environment.

Various strategies and interventions have been identified to enhance student interest in music theory. Active learning approaches, technology integration, peer collaboration, and performance-based assessments have proven effective in promoting student engagement. Successful initiatives and programs implemented in similar contexts offer practical examples to guide future efforts. In conclusion, enhancing student interest in music theory is of utmost importance for Colleges of Education in Ghana. By implementing effective strategies and recommendations, educational institutions can create an environment that fosters a deeper engagement with music theory among students. It is crucial to recognize the cognitive, emotional, and social benefits of music theory education and prioritize its integration into the curriculum.

Moving forward, the recommendations provided in this review highlight the importance of curriculum development, teacher training, and policy implementation. Further research is warranted to explore and evaluate the effectiveness of the recommended strategies in the specific context of Colleges of Education in Ghana. By embracing these recommendations and investing in the enhancement of student interest in music theory, Colleges of Education in Ghana can nurture a new generation of music educators and advocates who will contribute to the vibrant music community in the country.

## Enhancing the Interest of Colleges of Education Students in Ghana in Music Theory: Strategies and Recommendation

### CONCLUSION AND RECOMMENDATION

In conclusion, this study has explored the strategies and recommendations for enhancing the interest of College of Education students in Ghana in music theory. The findings highlight the importance of addressing factors such as prior musical experiences, teaching methods, curriculum design, and cultural influences in order to foster a deeper engagement with music theory among students.

The study revealed that active learning approaches, technology integration, peer collaboration, and performance-based assessments are effective strategies for enhancing student interest in music theory. These strategies promote student engagement, motivation, and a sense of ownership over their learning. Additionally, a well-designed and culturally relevant curriculum that embraces diverse musical genres and integrates real-world examples is crucial for capturing students' interest and connecting theory to practical applications.

### RECOMMENDATIONS

Based on the findings, the following recommendations are proposed for enhancing the interest of Colleges of Education students in Ghana in music theory:

**Teacher Training and Professional Development:** Provide comprehensive training and professional development opportunities for music educators in Colleges of Education. These programs should focus on incorporating active learning strategies, technology integration, and culturally responsive pedagogies. By equipping educators with the necessary skills and knowledge, they can create engaging and inclusive music theory learning experiences.

**Curriculum Development:** Revise and develop music theory curricula that are culturally relevant, inclusive, and aligned with students' musical backgrounds and interests. Incorporate a variety of musical genres, practical applications, and hands-on activities to make the content more engaging and meaningful.

**Community Partnerships:** Foster collaborations between Colleges of Education, local music professionals, and community organizations. These partnerships can provide opportunities for students to participate in music festivals, performances, and mentorship programs, thereby expanding their musical experiences beyond the classroom.

**Awareness Campaigns:** Launch awareness campaigns to highlight the importance and benefits of music theory education. Educate students, parents, and policymakers about the cognitive, emotional, and social advantages of studying music theory, dispelling misconceptions, and fostering a supportive environment for music education.

**Research and Evaluation:** Encourage further research and evaluation of the strategies and recommendations for enhancing student interest in music theory. This will contribute to the growing body of knowledge in the field and help refine and improve the effectiveness of these strategies within the Ghanaian context.

Implementing these recommendations will require collaborative efforts among educational institutions, policymakers, music educators, and the wider community. By prioritizing the enhancement of student interest in music theory, Colleges of Education in Ghana can play a pivotal role in nurturing a generation of music enthusiasts, educators, and advocates who will contribute to the preservation and development of Ghana's rich musical heritage.

### REFERENCES

- 1) Abril, C. R., & Gault, B. M. (2018). *Teaching general music: Approaches, issues, and viewpoints*. Oxford University Press.
- 2) Anderman, E. M., & Maehr, M. L. (2014). *Motivation and schooling in the middle grades*. Information Age Publishing.
- 3) Brown, D., & Rodriguez, S. (2019). Diversity in the music theory classroom: A modern approach. *Global Music Review*, 10(1), 34-43.
- 4) Burnard, P., Dillon, S., Rusinek, G., & Saether, E. (2018). *Transforming Music Education in and Through Higher Education: A Global Perspective*. Oxford: Oxford University Press.
- 5) Campbell, P. S., & Scott-Kassner, C. (2019). *Musician and teacher: An orientation to music education*. Waveland Press.
- 6) Carpenter, E., & Davis, T. (2020). Musical engagement and mental health: Exploring patterns in the modern adolescent. *Journal of Youth Studies*, 23(5), 567-582.
- 7) Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.
- 8) Custodero, L. A. (2019). *Music learning and teaching for children and youth: A conceptual framework*. Oxford University Press.
- 9) Custodero, L. A. (2019). *Music learning and teaching for children and youth: A conceptual framework*. Oxford University Press.

## Enhancing the Interest of Colleges of Education Students in Ghana in Music Theory: Strategies and Recommendation

- 10) Custodero, L. A. (2019). The social and emotional benefits of music education. In R. MacDonald, G. Kreutz, & L. Mitchell (Eds.), *Music, Health, and Wellbeing* (pp. 335-350). Oxford University Press.
- 11) Davis, K. (2018). Active learning in the music theory classroom. *Music Education Today*, 9(2), 23-29.
- 12) Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer Science+Business Media.
- 13) Department for Education. (2011). *The importance of music: A national plan for music education*. Retrieved from the UK Government website.
- 14) Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109-132.
- 15) Fautley, M., & Savage, J. (2018). *Lesson planning for primary school teachers*. London: Bloomsbury Academic.
- 16) Forgeard, M., Schlaug, G., Norton, A., Rosam, C., Iyengar, U., & Winner, E. (2019). Practicing a musical instrument in childhood is associated with enhanced verbal ability and nonverbal reasoning. *PLOS ONE*, 14(11), e0225964.
- 17) Hallam, S. (2015). *The power of music: A research synthesis on the impact of actively making music on the intellectual, social, and personal development of children and young people*. London: International Music Education Research Centre.
- 18) Hallam, S., Creech, A., McQueen, H., Varvarigou, M., & Gaunt, H. (2015). Perceived benefits of active engagement with making music in community settings. *International Journal of Community Music*, 8(3), 245-258.
- 19) Hickey, M. (2015). *The music education handbook*. Oxford University Press.
- 20) Hickey, M. (2015). *The music education handbook*. Oxford University Press.
- 21) Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111-127.
- 22) Hodges, D. A. (2016). *The Oxford handbook of music education*. Oxford University Press.
- 23) Kratus, J. (2017). *Music education at a crossroads: Realizing the goal of music for all*. Routledge.
- 24) Lamont, A., Greasley, A., & Hanser, S. B. (2018). *The Routledge companion to music, technology, and education*. Routledge.
- 25) Madsen, C. K. (2019). *Assessment in music education: Integrating curriculum, theory, and practice*. Oxford University Press.
- 26) Martin, R. (2017). The rise of digital platforms in music education. *Journal of Music Technology*, 8(4), 55-63.
- 27) McPherson, G. E., & Welch, G. F. (2018). *The Oxford handbook of music education, Volume 1*. Oxford University Press.
- 28) Mehr, S. A., Schachner, A., Katz, R. C., & Spelke, E. S. (2021). Two randomized trials provide no consistent evidence for the nonmusical cognitive benefits of brief preschool music enrichment. *PLOS ONE*, 16(3), e0246543.
- 29) Miksza, P. (2015). *Teaching music creatively*. Oxford University Press.
- 30) Ng, R., & Hartwig, K. (2015). Cultural immersion through musical activities: Fostering global citizens in secondary education. *International Journal of Music Education*, 33(2), 237-250.
- 31) Ofori-Atta, J. (2015). Learning to teach music in colleges of education in Ghana: Challenges and prospects. *International Journal of Music Education*, 33(4), 452-467.
- 32) Ofori-Atta, J. (2015). The challenges facing the study of music theory and the training of music teachers in Colleges of Education in Ghana. *International Journal of Education and Research*, 3(3), 113-126.
- 33) Phillips, K. H., & Gromko, J. E. (2018). *The Kodály method I: Comprehensive music education*. New York: Routledge.
- 34) Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *Elementary School Journal*, 106(3), 225-236.
- 35) Richardson, A., & Hallam, S. (2017). The impact of extracurricular music activities on adolescents' socio-emotional development. *Psychology of Music*, 45(3), 378-391.
- 36) Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- 37) Schellenberg, E. G. (2015). Music and cognitive abilities. In R. A. Scott & S. D. Lipscomb (Eds.), *The Oxford Handbook of Music Education* (Vol. 2, pp. 224-239). Oxford University Press.
- 38) Schellenberg, E. G. (2015). Music training and nonmusical abilities: New evidence and practical implications. *Music Perception*, 32(2), 121-131.
- 39) Smith, J., & Jones, M. (2014). Engaging students in music: A comprehensive approach. *Music Education Journal*, 101(2), 45-52.
- 40) Smith, L., & Jones, P. (2016). Beyond the classroom: The importance of extracurricular musical activities in student development. *Music Educators Journal*, 102(4), 45-50.

## Enhancing the Interest of Colleges of Education Students in Ghana in Music Theory: Strategies and Recommendation

- 41) Spruce, G. (2016). Teaching music in secondary schools: A reader. Routledge.
- 42) Spruce, G., & Matthews, F. (2017). Critical debates in music education. London: Bloomsbury Publishing.
- 43) Thompson, J., & Lee, A. (2016). Music and history: An integrated approach. *Journal of Historical Musicology*, 3(3), 12-21.
- 44) Thompson, S., Graham, J., Williams, R., & Thomas, L. (2019). Neurological enhancements through musical activities: A comprehensive analysis. *Cognitive Neuroscience*, 10(2), 123-138.
- 45) Tierney, A. T., & Kraus, N. (2013). Music training for the development of reading skills. *Progress in Brain Research*, 207, 209-241.
- 46) Wang, Q., Wong, Y. Y., & Liu, D. (2019). Musical training improves executive functions and self-control. *Psychology of Music*, 47(3), 375-387.
- 47) Wang, S., Welch, G. F., & Papageorgi, I. (2019). Music education and cross-cultural understanding. In G. F. Welch & S. D. O'Neill (Eds.), *The Oxford Handbook of Music Education* (Vol. 2, pp. 133-146). Oxford University Press.
- 48) Watson, P. (2020). Peer-led discussions in music theory. *Journal of Collaborative Learning*, 11(3), 44-52.
- 49) Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68-81.
- 50) Williams, L. (2015). Gamification in music theory pedagogy. *Music in Schools*, 5(1), 33-40.
- 51) Wilson, M., & Patterson, R. (2018). Cognitive benefits of musical extracurriculars: Links to academic achievement in mathematics and language. *Educational Psychology Review*, 30(3), 853-871.



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## Legal Aspects in Religious Financial Management Case Study on the Surabaya City Government Budget



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**ABSTRACT:** Economic development aims to enhance capabilities and freedom of choice, relying significantly on government spending. The local government's financial administration, as shown by the Regional Budget (APBD), reflects its capacity to fund governance, development, and social services. Financial ratios analysis is employed to assess the local government's performance. Regional autonomy laws empower regional authorities to provide transparent, participatory, and accountable services to the community. This study evaluates the efficiency of regional revenue realization using a descriptive juridical approach, focusing on the legal aspects of financial management in Surabaya City's local government budget.

**KEYWORDS:** Religious Financial Arrangements, Local Government

### I. INTRODUCTION

Regional autonomy is the granting of authority to regions to control and manage local interests communities in accordance using their aspirations and due to laws and regulations. The granting of autonomy is based on a the new rule on local government, On October 5, 2004, laws No. 32/2004 and No. 33/2004 on the financial balance between the federal government and local municipalities were passed. Passed on October 15, 2004, which replaced Law No. 22/1999 and Law No. 25/1999. As a result of the granting of broad autonomy, district governments are empowered to manage the potential of their own regions. Law No. 32/2004 gives district government's broad authority to organize every government matter, including except for some areas like foreign policy, military and security, financial justice, fiscal, religion, and other authorities specified by government rules, plan, implementation, supervision, control, and evaluation. In order to fulfill the obligations of this broad regional autonomy, local governments are responsible for improving services and community welfare democratically, justly, equitably, and sustainably. Local governments must do a better job of managing the potential of their areas, including natural resources, human resources, and prospective financial resources.

(Kema, Ihwan: 2013) Article 4 of Regional financial management must be organized, compliant according to Government Regulation No. 58/2008 regulating regional financial management and accountability. The ideals of fairness, compliance, and providing advantages to the society must also be considered by the financial management. The creation of regional revenue and expenditure budgets, which demonstrate the ability of local governments to raise funds for social services, development, and governance both directly and indirectly, is a key indicator of their financial management skills. As the entity in charge of coordinating community development, government, and other services, local governments have an obligation to submit their local financial accountability reports. The report is used to assess the extent to which the local government performs its duties well. Assessment of the success of various development programs implemented by local governments can be done through the auditing process by the accounting profession. This aims to determine the extent to which government accounting standards have been appropriately applied and whether The financial statements comply with the requirements for fairness standards applicable to the operations of a local government. In addition, assessingBy comparing financial ratios to the previously set and put into place Regional Revenue and Expenditure Budget (APBD), it is possible to assess how well local governments are performing in managing local finances. In this way, it can be assessed how the effectiveness via means of public funds by municipal authorities in achieving development goals and services to the community. In Chapter VIII on Financial Matters in the 1945 Constitution, it is stated that the APBN (Specified by legislation each year, the governmental Revenue and Expenditure Budget is a type of governmental financial management. The APBN must be conducted in an open and accountable manner with the goal of ensuring the maximum

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prosperity for the populace. Additionally, Article 23A states that things pertaining to state finances in compliance with Article 23C's directive are likewise governed by law, as are taxes and other coercive levies for state objectives.

(Renyowijoyo: 2013) In the process, A bill on state finances voted by the House of Representatives (DPR) has become Law No. 17/2003 on state finances. This law regulates various fundamental matters regarding state finances, including the definition and scope of the state, the fundamental rules of state financial management, the president's status as the custodian of those rules, and the delegation of the President's authority to the Minister of Finance and Ministers / Heads of Institutions, the composition of APBN and APBD, as well as provisions regarding the preparation and stipulation of APBN and APBD, as well as the deadline for submitting accountability reports on the implementation of APBN and APBD. Previously, on April 5, 2003, the implementation of state financial management still referred to Dutch East Indies colonial regulations, such as the Reglement voor het Administratief Beheer (RAB), Indische Comptabiliteitswet (ICW), and Indische Bedrijvenwet (IBW), which were in effect based on the transitional rules of the 1945 Constitution. Although these colonial regulations are still formally applicable, some of these provisions are no longer materially applied because they cannot accommodate the development of the state institutional system and state financial management. (Asshidiqie, Jimly: 2004) Law No. 17/2003 is a reformist product in the field of state finance, which combines two financial management systems, namely the state financial management system and the regional financial management system. However, the purpose of such unification is not clearly found in the law. Although the term "regional finance" is included in this law, harmonization with Audit of State Financial Management and Accountability Law No. 15/2004 is not found, leading to several different interpretations of the definition of state finance. Since the enactment of Law No. 33/2004 on Fiscal Balance between the Central Government and Regional Governments and Law No. 32/2004 on Regional Governance, there have been various regional financial management adjustments. With these laws, local governments have gained broad new authority in managing finances, including the freedom to determine the direction, objectives, and targets of budget expenditures and the ability to mobilize financial resources.

## II. DISCUSION

(Subaedah, Syarifin Pipin Dedah: 2005) After being delegated financial authority by the central government, the sub-district functions as one of the regional organs that has the resources needed to be realized in accordance with the predetermined budget, so that Financial planning and management must be done carefully. The importance of measuring Evaluation of regional financial performance for degree of attainment of various indicators, one of which is through value for money analysis. In this way, the extent of successful regional financial management and asset utilization can be determined. Surabaya, as the second-largest city in terms of population in Indonesia after Jakarta, serves as the provincial capital of East Java. The city, nicknamed the 'city of heroes', has a high population density and serves as the center of economy, education, and socio-cultural activities that attract people to work, do business, and seek entertainment. The impact is that there are many transactions in Surabaya City, which affect regional income and expenditure. Surabaya's source of local revenue comes from high taxes and retributions, while the cost of local expenditure and direct expenditure for the construction of complete and adequate public facilities continues to increase. To assess Surabaya's financial performance from the financial sector, research is needed on the Surabaya City Government's financial standing. According to the provisions of Permendagri Regional finances are all regional obligations pertaining to the administration of regional government, including all forms of wealth connected to these obligations and rights, valuable in money, according to Article 1 of number 13 of 2006, clause (6). Furthermore, paragraph 8 of article 1 emphasizes that all actions related to planning, carrying out, controlling, reporting, accounting for, and observing regional finances are included in regional financial management.

(Andayani: 2007) In general, finance reports are prepared to assist the finance department in forecasting the resources needed to carry out operational activities on an ongoing basis. More specifically, government financial reports aim to present useful information in the making of decisions, as well as show the reporting entity's responsibility for the resources reported to the local government. With the intention of presenting accurate and pertinent information about the financial situation and all transactions that took place during a reporting period, the Surabaya City Local Government Financial Report was created. The regional financial statements are also used to examine the efficacy and efficiency of regional financial management by comparing the realization of revenues, expenses, transfers, and financing to the established budget. In addition, the report helps determine the level of obeying the law and the rules. The preparation process Surabaya City Government financial reports is a form of accountability from the Mayor of Surabaya for financial management and regional performance in one calendar year. Considering the description above, the author wants to know the description of the legal aspects financial management in the regional budget of the Surabaya City Government.

### III. INSERT

#### 3.1. Overview of Surabaya City

As the capital of East Java Province and the center of development for Development Area Unit I (Gerbang Kertosusila), Surabaya City has a very important role for the surrounding area. The growth and development that occurs in Surabaya City is expected to be able to directly or indirectly encourage and trigger the development of surrounding areas. Conversely, the surrounding area is also expected to be a support for Surabaya City, so that both support each other and benefit from the development between them. This mutually beneficial development process will create a multiplier effect for Surabaya City and its surrounding areas. (Halim, A: 2012) Surabaya City is one of the centers of economic growth in East Java. Therefore, it is important for Surabaya City to pay attention to the development of the surrounding economy, including the wider regional area, namely the Eastern Indonesia Region (WTI). Surabaya City is not only the center of development for the Main Development Area Unit (SWPU) C which includes not only the heart of East Java, Bali, West Nusa Tenggara, Central Kalimantan, South Kalimantan, and East Kalimantan Provinces development for the Development Area Unit (SWP) I which covers Gresik Regency, Bangkalan, Mojokerto, Sidoarjo, Lamongan, and Surabaya City itself. Therefore, economic development in the region will have an impact on the economic development of Surabaya City. (Mahsun: 2013) To see the economic development of East Java, the An annual growth indicator for The gross regional product (GRDP) is employed. the total cost of all products and services generated by the country is known as GRDP. East Java economy in one year. GRDP is calculated on the basis of current prices, but as an indicator of economic growth, it needs to be made into constant prices according to a certain base year to remove the element of inflation. The base years used in Indonesia are usually 1973, 1983 and 1993. For almost two decades, the growth of East Java's GRDP during 1983-1996 was quite high, except in 1987 and 1996 when it was relatively low. The highest growth occurred in 1990, 1994, and 1995 with an average of over 8%. However, in 1998, there was a drastic decline in GRDP to minus 16.22% as a result of various factors, including the long lean season and the Rupiah's value has dropped compared to the US dollar. Which resulted in rising prices and declining purchasing power as well as layoffs and high unemployment.

#### 3.3. Surabaya City at the Center of East Java's Economy

It is important to note that Surabaya City, as one of the centers of economic growth in East Java, needs to monitor economic developments around East Java Province, including the wider regional area of Eastern Indonesia (WTI). This is because Surabaya City is not only the center of the Main Development Unit (SWPU) C which includes the East Kalimantan, East Java, Bali, West Nusa Tenggara, Central Kalimantan, and South Kalimantan provinces are included, as well as Gresik, Bangkalan, Mojokerto, Sidoarjo, Lamongan, and Surabaya City itself, which is the heart of the Development Unit (SWP) I. As a result, the region's economic growth will have an effect on Surabaya City's economy both directly and indirectly. The Gross Regional Domestic Product (GRDP) growth/increase indicator, which is typically reported as a percentage, is used each year to track the economic progress of East Java. The gross domestic product (GRDP) of the East Javan economy in a given year, which includes products and services produced by the government and the private sector, both domestic and foreign. GRDP is usually calculated at current prices. However, as an indicator of economic growth, GRDP at current prices is less accurate because it contains elements of inflation or price increases. In order to be used as an indicator of economic growth, GRDP at current prices must be made into constant prices by setting a certain base year to eliminate the element of inflation. In Indonesia, the base year used to calculate GRDP at constant prices is the base year, which is the year in which the economy is in a relatively stable condition. Over a period of almost two decades, from the early eighties until the economic crisis of mid-1997 and 1998, the growth of East Java's GRDP during 1983-1996 was quite high, with figures in the range of 6-7% except in 1987 and 1996 which recorded relatively low growth, which was around 4.73% and 5.09%, respectively. Meanwhile, the highest growth occurred in 1990, 1994, and 1995 with an average of over 8%. However, in 1998, GRDP reached its lowest point at minus 16.22% as a result of various factors, including a long lean season and the Rupiah's value has dropped compared to the US dollar.. These conditions led to fantastic price increases and a 75% decline in people's purchasing power. On the other hand, many businesses could no longer afford to produce due to the significant increase in the price of imported raw materials. This phenomenon eventually resulted in layoffs and an unavoidably high unemployment rate.

#### 3.3. Surabaya City's Contribution to East Java Economy

(Permendagri No. 16 of 2013) It is evident that the role of Surabaya City's economic development in the center of the Gerbang-kertosusila region and the wider region of East Java Province is very dominant. This can be seen from the proportion of Gross Regional Domestic Product (GRDP) contribution of Surabaya City to Development Area Unit I and the total GRDP of East Java. In 1993, Surabaya City's GRDP contribution to the East Java economy was 21.86%, and continued to increase until it reached 22.47%; 22.95%; 23.39%; and 23.53% in the following years. However, starting in 1998, the contribution of GRDP experienced a drastic decline until it reached a contraction of 18.01%. This decline was understandable as both the regional and national economies were experiencing an economic crisis at the time. However, in 1999, the economy began to recover and Surabaya City's GRDP



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contribution increased again to reach 21.83%. For the SWP I or Gerbang-kertosusila region itself, Surabaya City's GRDP contribution in 1993 was 53.04%, and continued to increase in the following years, from 53.58% to 54.68%. In other words, more than half of the economic activity centers in the Gerbang-kertosusila region depend on Surabaya City. The contribution of SWP I or Gerbang-kertosusila to the formation of East Java Provincial GRDP during this period moved in the range of 40% to 43%, except in 1998 when regional and national macroeconomic conditions experienced an economic recession.

### IV. ANALYSIS

#### 4.1. Legal Basis for Regional Financial Management

In order to manage local finances/budgets, legislation has been issued as a guide and reference for local governments. Permendagri No. 16 of 2013 replaces Government Regulation No. 58 of 2005 pertaining to Regional Financial Management. The Minister of Home Affairs also released Permendagri No. 13 of 2006 regarding Regional Financial Management Guidelines, which was later updated by Permendagri No. 59 of 2007 regarding changes to Permendagri No. 13 of 2006 regarding Regional Financial Management Guidelines. According to Permendagri No. 16 of 2013, regional financial management entails a number of tasks including planning, implementation, administration, reporting, and accountability, as well as regional monitoring. The planning and creation of the Regional Budget (APBD), which must be in compliance with the requirements of governance and the capacity of regional revenues, is the first step in the entire process. The APBD serves as a policy tool to enhance regional public services and social welfare, and it must reflect the community's actual needs while also taking into account the region's potential and unique characteristics, as well as the requirements for the development of regional budgets that are focused on local interests and public accountability. In budgeting, regional revenue is an important aspect. Regional revenue includes three components, namely Other Legal Revenues, Balancing Funds, and Regional Original Revenue (PAD). The regional government has a right known as regional revenue, which is defined as an increase in net value over the course of a year. For the benefit and welfare of the society, a well-planned budgeting procedure that is carried out in a systematic and disciplined manner would produce more ideal results.

#### 4.2. Surabaya City Government Financial Report Fiscal Year 2022

(Regulation 12 of 2019 of the Government pertaining to Regional Financial Management) The Surabaya City Local Government Financial Statements are prepared with the aim of providing reliable and information that is pertinent to the financial situation and all transactions that occurred at the time of the report. These financial statements are also used to examine financial situation, review the efficacy and efficiency of financial management, and assist in determining compliance with laws and regulations. They are used to compare the realization of revenue, spending, transfers, and financing with the established budget. The preparation of the Surabaya City Local Government The Mayor is held accountable through the financial report. of Surabaya for financial management and regional performance in one fiscal year. Putting regional financial management in place recorded in the Surabaya City Local Government Financial Statements (LKPD) is carried out by the Regional Revenue and Financial Management Office. The Surabaya City financial report consists of several components, namely:

- 1) Budget Realization Report 2022, which presents information about the implementation of budgeted activities during one fiscal year, including revenues, expenditures, and financing. Revenues are classified based on own-source revenues, transfer revenues, and other legal revenues. Meanwhile, expenditures are classified into operating expenditures, capital expenditures, unexpected expenditures, and transfers. This report also records the previous year's budget realization for comparison with the current year.
- 2) The 2022 Balance Sheet, which shows the financial position of equity in the fund, assets, and liabilities as on a particular date. Short-term and long-term obligations are separated from assets, which are further broken down into current assets, fixed assets, and other assets. The balance sheet also includes information on fund equity, which consists of current fund equity and investment fund equity.
- 3) The 2022 Statement of Cash Flows, which describes cash receipts and disbursements during a given period divided into operations, non-financial asset investments, finance, and extrabudgetary activities. This report is helpful as both a predictor of future cash flow volume and a way to hold people accountable for cash inflows and outflows throughout the reporting period.
- 4) Notes to the 2022 Financial Statements, which consists of seven chapters. The first chapter contains an introduction to the aims and objectives the legal foundation for the creation of the financial accounts and the methodical note-writing. The following chapters present information on macroeconomics, financial policies, achievement of APBD performance targets, overview of realization of achievement of financial performance targets, regional financial reporting entities, basis of accounting, details and explanations of each financial item, and matters that have not been informed in the report. The last chapter contains concluding notes to the financial statements. The realization budget management of Surabaya City in 2022

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covers various aspects including revenue, expenditure, and financing. The following is an overview of the realization budget management in Surabaya City in 2022:

- a) Revenue:
  - Local Own Revenue (PAD): The management of local own-source revenues includes various sources of revenue such as the outcomes of the management of segregated local assets, local taxes, local levies, and other legal PAD. In the management of PAD, related parties make efforts to increase PAD revenue by optimizing existing potentials and enforcing laws against payment obligations from parties who owe the region.
  - Transfer Revenue: Transfer revenue management involves the receipt of balancing funding from the federal government and other organizations, such as the Revenue Sharing Fund, the Special Allocation Fund, and the General Allocation Fund (DBH). The terms of the relevant laws and regulations are followed in regulating the receipt of these transfer monies.
  - Other Legitimate Revenues: In addition to PAD and transfer revenues, Surabaya City can also obtain revenues from other legal sources and have been determined in laws and regulations.
- b) Expenditure:
  - Operational Expenditure: The management of operational expenditures includes personnel expenditures (salaries, allowances, etc.), goods expenditures (operational goods and other needs), and other services expenditures required to support the operational activities of local government.
  - Capital Expenditure: Capital expenditure management involves the use of budget for the construction, procurement, and repair of local fixed assets, such as infrastructure and other public facilities.
  - Unexpected Expenditure: The management of unforeseen expenditures involves budgeting to address emergencies or matters that cannot be predicted in advance.
  - Transfers: The management of transfers involves the provision of funds to other parties, such as financial assistance and revenue sharing funds, in accordance with applicable regulations.
- c) Financing:
  - Local Revenue: The management of regional revenue includes the acceptance of loans and the issuance of regional bonds to obtain external sources of financing.
  - Regional Expenditure: Regional expenditures include debt payments that must be paid by the region. Residual Budget Financing (SILPA): SILPA management involves using the remaining budget after all revenues and expenditures have been realized. SILPA can be used for various purposes that have been determined in laws and regulations.
  - The management of the realization budget of Surabaya City in 2022 is carried out by complying with all applicable laws and regulations efforts to achieve effectiveness and efficiency in the use of regional financial resources. This aims to support the implementation of local government programs and activities and improve the welfare of the community.

### 4.3. Analysis of Local Government Oversight of the Local Revenue Budget

Regional financial management, according per Permendagri No. 16 of 2013 regarding regional financial management, entails all regionally-based planning, implementation, administration, reporting, and accountability activities. The Regional Budget (APBD)'s preparation and creation marks the start of the management process. The APBD serves as a tool for policy improvement in the region's public services and social welfare. The APBD must reflect the real needs the potential and needs of the community in accordance with characteristics of the region, and meet the demands for creating a regional budget that is oriented towards public interest and accountability. With good planning and orderly and disciplined implementation, regional development goals can be achieved more optimally. The APBD also has several operates in accordance with Law Number 33 of 2004 regarding Central and Regional Financial Balance, namely:

- 1) Authorization Function, the APBD is the basis for implementing revenue and expenditure in the year concerned.
- 2) Planning Function, APBD is a management planning guideline for the relevant year's operations.
- 3) Monitoring The APBD serves as a guide to determine whether the actions taken by the government administration are in conformity with established rules.
- 4) Allocation Function, APBD is used to increase economic efficiency and effectiveness while reducing unemployment and resource waste.

(Sidik, Mahfud: 2002) The APBD implementation includes revenue, expenditure and financing budgets. After one semester, the local government prepares a report on the realization of the first semester of the APBD and a prognosis for the following 6 months, which is then discussed with the DPRD. If there are developments or changes in circumstances, APBD adjustments are discussed with the DPRD in the preparation of forecasts for changes to the APBD for the fiscal year concerned. Performance measurement is a procedure for evaluating progress. In implementing activities/ programs/ policies in achieving predetermined objectives. This measurement includes information on the efficient use of resources, the standard of products and services, as well as the outcomes of actions, as desired targets, and the effectiveness of actions in achieving goals. With predetermined success criteria, the performance of a person or organization can be measured and evaluated.

## V. CONCLUSION

In conclusion, Surabaya City plays a vital role as the capital of East Java Province and the center of development for Development Area Unit I (Gerbang Kertosusila). Its growth and development directly and indirectly influence the surrounding areas, creating a

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mutually beneficial development process. As one of the hubs for economic expansion in East Java, Surabaya City must closely monitor economic developments in the wider Eastern Indonesia Region (WTI). The Gross Regional Domestic Product (GRDP) growth indicator is used to assess the economic development of East Java annually. Surabaya City's GRDP contribution to East Java's economy has been significant over the years. However, there were fluctuations, with the highest growth recorded in the early 1990s and a drastic decline during the 1998 economic crisis. Surabaya City is not only the center of development for the Main Development Area Unit (SWPU) C but also for the Development Area Unit (SWP) I, making it crucial for the city to consider the economic development of the surrounding region. In terms of regional financial management, regulations have been issued to guide local governments in managing their finances. The Regional Budget (APBD) is a key instrument for improving public services and community welfare. Effective and disciplined budget planning and implementation contribute to achieving optimal results. The Surabaya City Government's financial report for fiscal year 2022 provides information on the financial position and transactions, aiding in evaluating financial performance, compliance with laws and regulations, and regional performance. The report covers revenue, expenditure, and financing budgets, as well as residual budget financing (SILPA). Overall, Surabaya City's economic development is closely intertwined with the development of the Gerbang Kertosusila region and the wider East Java Province. By ensuring effective regional financial management and closely monitoring economic developments, Surabaya City can continue to thrive as an essential economic center in the region.

### ACKNOWLEDGMENT

Praise and gratitude to God Almighty, because for His blessings and grace, I can complete this Journal. The writing of this journal was carried out in order to fulfill one of the requirements for applying for a lecturer position at Madura University. The author realizes that in writing this journal there are still shortcomings, for that constructive criticism and suggestions are expected to be able to perfect this journal. At the end of the word, the author would like to thank you and hopefully this journal can be useful for all parties in need.

### REFERENCES

#### Book

- 1) Dumairy. 1997. *Perekonomian Indonesia*. Jakarta: Erlangga.
- 2) Hariadi, Pramono, Restianto Yanuar, Bawono, Icku Rangga. 2010. *Pengelolaan Keuangan Daerah*. Salemba Empat. Jakarta.
- 3) Helfert, Erich. 2000. *Teknik Analisa Keuangan*. Jakarta: Erlangga.
- 4) Mewengkang, Frangky. 2010. *Efisiensi dan Efektifitas Pengelolaan Keuangan Daerah Di Provinsi Sulawesi Utara*. Jakarta: Press Media.
- 5) Sidik, Mahfud 2002. 2002. *Perimbangan Keuangan Pusat dan Daerah Sebagai Pelaksanaan Desentralisasi Fiskal: Diantara Teori dan Aplikasi Di Indonesia*. Bandung: Fakultas Ilmu Ekonomi UGM.
- 6) Soetrisno. 1982. *Dasar-Dasar Ilmu Keuangan Negara*. Yogyakarta: Fakultas Ilmu Ekonomi UGM.

#### Web

- 1) Keuangan, Departemen. 2007. *Departemen Keuangan*. April Monday. Accessed Juli Monday, 2023. [www.djapk.depkeu.go.id/APBD/2007](http://www.djapk.depkeu.go.id/APBD/2007).
- 2) Oesi Agustina, 2013. Analisis Kinerja Pengelolaan Keuangan Daerah dan Tingkat Kemandirian Daerah Di Era Otonomi Daerah: Studi Kasus Kota Malang (Tahun Anggaran 2007-2011). <http://jimfeb.ub.ac.id>. Diakses. Hal. 1.
- 3) Sheng, Y. What is Good Governance? United Nations Economic and Social Commission for Asia and the Pacific. <http://governance-indonesia.com>. 2015. Hal. 1.
- 4) Eivani, F. Nazari, K and Emami, M. 2012. *African Journal of Business Management*. Vol.6(29). 8475-8482.
- 5) Peraturan Perundang-Undangan
- 6) Pemerintah Republik Indonesia. Undang-Undang Nomor 17 Tahun 2003 Tentang Keuangan Negara
- 7) Undang-Undang Republik Indonesia Nomor 1 Tahun 2022 Tentang Hubungan Keuangan Antara Pemerintah Pusat dan Pemerintah Daerah
- 8) Pemerintah Republik Indonesia. Permendagri Nomor 13 Tahun 2006 Tentang Pengelolaan Keuangan Daerah
- 9) Undang-Undang Nomor 28 Tahun 2022 Tentang Anggaran Pendapatan dan Belanja Negara Tahun Anggaran 2023.
- 10) Peraturan Menteri Dalam Negeri Nomor 59 Tahun 2007 Tentang Perubahan Atas Peraturan Menteri Dalam Negeri Nomor 13 Tahun 2006 Tentang Pedoman Pengelolaan Keuangan Daerah.
- 11) Peraturan Menteri Dalam Negeri Nomor 84 Tahun 2022 Tentang Pedoman Penyusunan Anggaran dan Belanja Daerah Tahun Anggaran 2023.
- 12) Peraturan Daerah Kota Surabaya Nomor 9 Tahun 2021 Tentang Pengelolaan Keuangan Daerah.



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## Research and Development of Human Resource Management System at SMP Dharma Wirawan 08 Donomulyo



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**ABSTRACT:** This research aims to develop a Human Resource Management system at SMP Dharma Wirawan 08 Donomulyo. This Research and Development uses the Design Based Research method with the following steps: (1) Problem Identification (2) Identification of Goals (3) Preparation of Product Design (4) Product Design Test (5) Evaluation of Product Design Test Results (6) Product Communication. The subject used is Donomulyo Islamic Junior High School, data obtained through observation and interviews, and questionnaires. The questionnaire answers use a Likert scale with 5 assessment categories (1) very inappropriate, (2) not feasible, (3) quite feasible, (4) feasible, (5) very feasible. The data analysis technique uses a percentage of the quality system tested by two academic validators and practitioners.

The result of this research is a human resource management quality system at Donomulyo Islamic Junior High School with the following specifications: vision, mission, objectives, organisational structure, job description, quality policy and SOP (Standard Operating Procedure).

**KEYWORDS:** Research and Development, Management System of Human Resources.

### I. INTRODUCTION

The rapid development in the world of education requires every school to change the pattern of school management that has been achieved. That the current education system still does not show the ability in the field of financial accounting records and management of human resource management.

Basically, an agency is established by involving all forms of activities that are economic in nature, where from these activities are expected to obtain profitable results for the school foundation. In generating these profits, school foundations carry out various kinds of activities. This activity is the basis for school actors to make a management development. Which in this report is Sourced from data on school activities related to human resources. (Interview with the School's human resources department, 17 January 2023)

"With the current situation, the school expects to create a human resource management system, which is written and effective to improve the condition of SMP Dharma Wirawan 08 Donomulyo."

The problem at SMP Dharma Wirawan 08 Donomulyo is that there is no standard procedure for employee training which causes employee performance or operational activities that cannot be organised, Therefore that employee performance is one of the benchmarks and evaluations in carrying out the tasks assigned to each school teacher. To improve sub-optimal employee performance such as employee initiative, sub-optimal employee performance, delayed file preparation, Therefore human resource management system is needed. Therefore, an agency or school needs to develop a human resource system.

With these conditions, agencies must have good performance procedures, a comfortable atmosphere, and a good teaching and learning process. As well as employee efficiency in carrying out tasks So as to minimise errors in the workplace. For this reason, it is necessary to have a fixed procedure that is standardised, So that each employee must carry out the steps that must be done in accordance with the human resource management system.

### Research and Development

According to Sugiyono (2011: 407) research and development is a research method used to produce certain products, and test the effectiveness of these products.

According to Wayan (2009: 53) research and development has 4 characteristics, namely: (1) the problem to be Solved is a real problem related to innovative efforts or the application of technology in learning. (2) the development of models, approaches and methods and learning media that support the effectiveness of achieving student competencies. (3) the process of product

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development, validation conducted by expert tests and limited field trials need to be carried out So that the products produced are useful for improving the quality of learning. (4) the process of developing models, approaches, modules, methods, and learning media needs to be neatly documented and reported systematically.

### **System**

According to Mulyadi (2016: 4), a system is a network of procedures made according to an integrated pattern to carry out the company's main activities. Procedure is a sequence of clerical activities, usually involving several people in one or more departments, which are made to ensure uniform handling of company transactions that occur repeatedly.

According to Mulyadi (2010: 5) in his book entitled Accounting System states that, a system is a network of procedures made according to an integrated pattern to carry out the company's main activities while a procedure is a sequence of clerical activities, usually involving several people in one or more departments that are made to ensure uniform handling of company transactions that occur repeatedly.

### **Human Resource Management**

Malay (2013: 10) Human Resource Management is the science and art of regulating the relationship and role of labour So that it effectively and efficiently helps the realisation of the company, employees and Society.

Meanwhile, according to Merihot (2007: 5) Human Resource Management is one of the most important factors in a company besides other factors such as capital. Therefore, Human Resources must be managed properly and increase the effectiveness and efficiency of the organisation as one of the functions in the company.

### **Objectives of Human Resource Management Activities**

The real purpose of Human Resource Management is to increase Human Resource support in an effort to increase organisational effectiveness in achieving goals (Merihot, 2007: 5). More operationally to increase employee productivity, reduce absenteeism, reduce turnover, or increase employee loyalty to the organisation (Merihot, 2007:5).

### **Human Resource Management Activities**

There are 7 human resource activities according to Mathis and Jackson (2009:43) which are as follows:

- a. Human resource planning and analysis
- b. Equality of employment opportunities
- c. Appointment of employees
- d. Human resource development
- e. Compensation and benefits
- f. Health, safety and security
- g. Employee and labour or management relations

### **The Role of Human Resource Management**

Malay (2013: 14) human resource management regulates and establishes a staffing programme that covers the following issues:

- a. Determining the number, quality and placement of an effective workforce in accordance with the needs of the company job description, job specification, job requirements, and job evaluation.
- b. Determining employee attraction, selection, and placement.
- c. Establishing welfare, development, promotion, and dismissal programmes.
- d. Forecasting the future supply and demand of human resources.
- e. Forecasting the state of the economy in general and the development of the company in particular.
- f. Closely monitor the changing laws and policies on compensation of similar companies.
- g. Monitor technical progress and the development of labour unions.
- h. Implementing employee education, training, and performance appraisals
- i. Organising dismissal pensions and severance pay.

## **II. METHODS**

The research conducted by this researcher is research on the development of a Human Resource Management (HRM) system at Dharma Wirawan 08 Donomulyo Junior High School. The research and development used in this study used the Design Based Research model. As one of the scientific methods to find Solutions to improve the practice of phenomena through a combination of basic research and applied research.

Research on design-based research focuses on objects and processes in a specific context. The research should include details of the methodology for implementation and evaluation of the proposed Solution as it is largely a data collection and analysis

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phase of the research. The research should also include any possible and significant modifications required in the ongoing data collection and analysis phase.

Researchers use a research and development model because researchers create a framework based on needs analysis which is so poured into the form of a quality system. The development steps taken by researchers use the Design Based Research (DBR) approach. The stages of the Design Based Research (DBR) approach as carried out by Purwiyanto (2013) are (1) Problem Identification; (2) Identification of needs; (3) Preparation of design and content structure of training materials; (4) Trial; (5) Evaluation of trial results; (6) Communication of evaluation results with final revisions.

### Product Trial

#### 1. Trial Design

Product trials are activities to assess and test whether the product design, in this case a new work system will rationally be more effective than the old one or not (Sugiono, 2009: 302). The product trial aims to find out whether the product made is feasible to use or not.

#### 2. Trial Subject

This research and trial were conducted at SMP Dharma Wirawan 08 Donomulyo in the financial accounting and human resource management section. This emphasises the absence of detailed procedures in writing such as a quality system. So far, the existing quality system is still not optimal and only outlines the various experiences of employees, principals and school teachers.

#### 3. Type of Data

For qualitative data types, namely interviews or reports that are accumulated and therefore analysed with the aim of obtaining conclusions. Qualitative data collected by researchers are data in the form of school site profiles, history of the agency, organisational structure, and problems that exist in schools or agencies or institutions.

#### 4. Data Collection Instruments

##### a. Observation

Data collection techniques by making direct observations or observations on the object under study and systematically recording each object under study, therefore that researchers get data on the place of the agency in accordance with existing circumstances.

##### b. Interview

Data collection techniques by visiting the principal and asking questions about the ins and outs of Dharma Wirawan 08 Donomulyo Junior High School, therefore that in this case the researcher gets valid data directly from the principal.

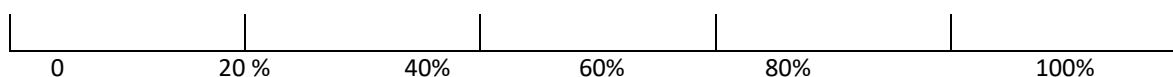
#### 5. Data Analysis Technique

The model used in this data analysis is system analysis, which is to collect the data that has been obtained and therefore designed into one so that it becomes a quality system in the form of a Standard Operating Procedure (SOP). According to Suhariadi and Purwanto (2012: 17) the interval scale is a scale of giving numbers to classifications or categories of objects that have ordinal size properties, and plus another property or the same interval and is characteristic of the object being measured. For example: Very High (5); High (4); Fair (3); Low (2); Very Low (1).

To determine the level of product validation, a percentage calculation is carried out with the following formula:

$$\text{Percentage} = \frac{\text{Number of All Variables}}{\text{Total Ideal Score}} \times 100\%$$

After being analysed to determine the conclusion of each aspect, namely aspects of usability, ease of use, completeness, and limitations of the quality system in the form of SOPs evaluated and determined by the variable section, the percentage was so analysed into five predicate categories as follows:



Source: Ridwan dan Sunarto (2007:23)

Information:

Number 0 - 20% : Very low

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Number 21% - 40% : Low  
 Number 41% - 60% : Enough  
 Number 61% - 80% : Tall  
 Number 81% - 100% : Very Tall

(Source: Ridwan dan Sunarto (2007:23))

### III. RESULTS AND DISCUSSION

The HR management system that has been designed by researchers is So given an assessment. Each validator was given a Validation questionnaire with criteria columns for several structures. The statements made in the questionnaire use a Likert scale with 5 score categories. Each score has a different weight, (1) Very Low, (2) Low, (3) Fair, (4) High, (5) Very High. The following is the assessment data that has been collected by researchers:

**Table 1. Results of Academician 1 (A1) Assessment of Human Resource Management**

No	Aspect	X1	X2	X3	X4
1	The realization of the optimization of competent, loyal and highly dedicated human resources.	5	4	4	5
Total score		5	4	4	5

**Vision Source:** Validation questionnaire table, processed by researchers 2023

Description: X1: Realistic, X2: Easy to understand, X3: Inspirational, X4: Motive

**Table 2. Results of Academic Assessment 2 (A2) on the Vision of Human Resource Management**

No	Aspect	X1	X2	X3	X4
1	The realization of the optimization of competent, loyal and highly dedicated human resources.	3	5	5	4
Total score		3	5	5	4

**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: Realistic, X2: Easy to understand, X3: Inspirational, X4: Motive

**Table 3 Results of Practitioners' Assessment of the Vision of Human Resource Management**

No	Aspect	X1	X2	X3	X4
1	The realization of the optimization of competent, loyal and highly dedicated human resources.	5	4	5	5
Total score		5	4	5	5

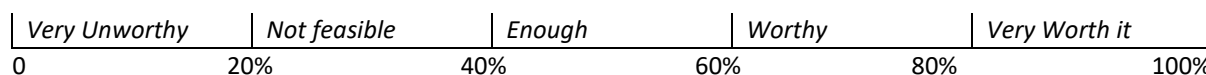
**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: Realistic, X2: Easy to understand, X3: Inspirational, X4: Motive

$$\text{Percentage} = \frac{A1 + A2 + P}{\text{Total Ideal Score}} \times 100\%$$

$$\text{Percentage} = \frac{18+17+19}{60} \times 100\%$$

$$\text{Percentage} = \frac{54}{60} \times 100\% = 90\%$$



1) From the realistic aspect for the vision of human reSource management, the following scores were obtained: academician 1 (5), academician 2 (4) and practitioner (4). With a total score of 13 and an average of 4 points, it can be concluded that this

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human reSource management vision has a high value from the realistic aspect. So it can be interpreted that this human reSource management vision is realistic and feasible to be implemented at Dharma Wirawan 08 Donomulyo Junior High School.

- 2) From the aspect of being easy to understand for the vision of human reSource management, the scores are as follows: academics 1 (4), academics 2 (5) and practitioners (4). With a total score of 12 and an average of 4 points, it can be concluded that this vision of human reSource management has a high value from the aspect of being easy to understand. So it can be interpreted that the vision of human reSource management is easy to understand and feasible to implement at SMP Dharma Wirawan 08 Donomulyo.
- 3) From the inspirational aspect for the vision of human reSource management, the scores are as follows: academics 1 (4), academics 2 (4) and practitioners (4). With a total score of 12 and an average of 4 points, it can be concluded that this human reSource management vision has a high value from the inspirational aspect. So it can be interpreted that this human reSource management vision is inspiring and feasible to be implemented at Dharma Wirawan 08 Donomulyo Junior High School
- 4) From the motivational aspect for the vision of human reSource management, the scores are as follows: academicians 1 (4), academicians 2 (4) and practitioner (5). With a total score of 12 and an average of 4 points, it can be concluded that this vision of human reSource management has a high value from the motivational aspect. So it can be interpreted that the vision of human reSource management is motivative and feasible to be implemented at SMP Dharma Wirawan 08 Donomulyo.

Based on the assessment of the vision of human reSource management with the four aspects above, the following results were obtained from academic experts 1 (18), academic experts 2 (17) and practitioner experts (19) the total score was 48 with an ideal score of 60, resulting in a percentage of 90%. The final conclusion of the assessment is that the vision of human reSource management in this quality system is very feasible to use.

**Table 4. Results of Academic Assessment 1 (A1) of Human Resource Management Mission**

No	Aspect	X1	X2	X3	X4
1	Carry out all human resource activities from recruitment, training and development.	5	3	4	5
Total score		5	3	4	5

**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: To Achieve Vision, X2: Easy to understand, X3 Realistic, X4: Strategic

**Table 5. Results of Academic Assessment 2 (A2) of Human Resource Management Mission**

No	Aspect	X1	X2	X3	X4
1	Carry out all human resource activities from recruitment, training and development.	4	5	3	4
Jumlah Skor		4	5	3	4

**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: To Achieve Vision, X2: Easy to understand, X3 Realistic, X4: Strategic

**Table 6. Results of Practitioners' Assessment of Human Resource Management Missions**

No	Aspect	X1	X2	X3	X4
1	Carry out all human resource activities from recruitment, training and development.	4	5	4	3
Total score		4	5	4	3

**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: To Achieve Vision, X2: Easy to understand, X3 Realistic, X4: Strategi

$$\text{Percentage} = \frac{A1 + A2 + P}{\text{Very Worth it}} \times 100\%$$

$$\text{Percentage} = \frac{17+16+16}{60} \times 100\%$$



## Research and Development of Human Resource Management System at SMP Dharma Wirawan 08 Donomulyo

$$\text{Percentage} = \frac{49}{60} \times 100\% = 81\%$$

Very Unworthy	Not feasible	Enough	Worthy	Very Worth it	
0	20%	40%	60%	80%	100%

- 1) From the aspects for achieving the vision, mission of human reSource management, the following scores were obtained: academican 1 (5), academican 2 (4) and practitioner (4). With a total score of 13 and an average of 4 points, it can be concluded that this human reSource management mission has a high value from the aspect of achieving the vision. So it can be interpreted that this human reSource management mission can play a role in achieving the vision and is suitable for implementation at Dharma Wirawan 08 Donomulyo Junior High School.
- 2) From the aspect of being easy to understand for the human reSource management mission, the scores are as follows: academics 1 (4), academics 2 (5) and practitioners (4). With a total score of 13 and an average of 4 points, it can be concluded that this human reSource management mission has a high score from the aspect of being easy to understand. So it can be interpreted that this human reSource management mission is easy to understand and feasible to implement at SMP Dharma Wirawan 08 Donomulyo.
- 3) From the realistic aspect for the human reSource management mission, the scores are as follows: academics 1 (4), academics 2 (4) and practitioners (5). With a total score of 13 and an average of 4 points, it can be concluded that this human reSource management vision has a high value from the inspirational aspect. So it can be interpreted that this human reSource management mission is realistic and feasible to be implemented at SMP Dharma Wirawan 08 Donomulyo.
- 4) From the strategic aspect for the human reSource management mission, the scores are as follows: academican 1 (4), academican 2 (4) and practitioner (5). With a total score of 12 and an average of 4 points, it can be concluded that this human reSource management mission has a high value from the strategic aspect. So it can be interpreted that this human reSource management mission is strategic and feasible to be implemented at Dharma Wirawan 08 Donomulyo Junior High School.

Based on the assessment of the human reSource management mission with the four aspects above, the following results are obtained from academic experts 1 (16), academic experts 2 (16) and practitioner experts (16) the total score is 48 with an ideal score of 60, resulting in a percentage of 81%. The final conclusion of the assessment is that the human reSource management mission in this quality system is very feasible to use.

**Table 7. Results of Academic Assessment 1 (A1) on the Objectives of Human Resource Management**

No	Aspect	X1	X2	X3
1	Able to contribute to the optimisation of competent, loyal and dedicated human resources.	4	4	4
	Total Score	4	4	4

**Source:** Validation questionnaire table, processed by researchers in 2023

**Description:** X1: Vision and mission contribution, X2: Realistic, X3: Targeted

**Table 8. Results of Academic Assessment 2 (A2) on the Objectives of Human Resource Management**

No	Aspect	X1	X2	X3
1	Able to contribute to the optimisation of competent, loyal and dedicated human resources.	4	4	4
	Total Score	4	4	4

**Source:** Validation questionnaire table, processed by researchers in 2023

**Description:** X1: Vision and mission contribution, X2: Realistic, X3: Targeted

**Table 9. Results of Practitioners' Assessment of Human Resource Management Objectives**

No	Aspect	X1	X2	X3
1	Able to contribute to the optimisation of competent, loyal and dedicated human resources.	3	4	4
	Total Score	3	4	4

**Source:** Validation questionnaire table, processed by researchers in 2023

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Description: X1: Vision and mission contribution, X2: Realistic, X3: Targeted

$$\text{Percentage} = \frac{A1 + A2 + P}{\text{Total Ideal Score}} \times 100\%$$

$$\text{Percentage} = \frac{12+12+11}{\text{Total Ideal Score}} \times 100\%$$

$$\text{Percentage} = \frac{35}{45} \times 100\% = 78\%$$

Very Unworthy	Not feasible	Enough	Worthy	Very Worth it	
0	20%	40%	60%	80%	100%

- 1) From the aspect of contribution to human reSource management objectives, the following scores were obtained: academican 1 (4), academican 2 (4) and practitioner (4). With a total score of 12 and an average of 4 points, it can be concluded that this human reSource management objective has a high score from the contribution aspect of the vision and mission. So it can be interpreted that this human reSource management objective can contribute to the vision and mission and is feasible to be applied at SMP Dharma Wirawan 08 Donomulyo.
- 2) From the realistic aspect for human reSource management objectives, the scores are as follows: academican 1 (4), academican 2 (4) and practitioner (4). With a total score of 12 and an average of 4 points, it can be concluded that this human reSource management objective has a high value from the realistic aspect. So it can be interpreted that this human reSource management objective is realistic and feasible to be applied at SMP Dharma Wirawan 08 Donomulyo.
- 3) From the directional aspect for human reSource management objectives, the scores are as follows: academics 1 (4), academics 2 (4) and practitioners (4). With a total score of 12 and an average of 4 points, it can be concluded that this human reSource management objective has a high value from the directed aspect. Which can be interpreted that the objectives of human reSource management are directed and feasible to be applied at SMP Dharma Wirawan 08 Donomulyo.

Based on the assessment of human reSource management objectives with the three aspects above, the following results are obtained from academic experts 1 (12), academic experts 2 (12) and practitioner experts (11) the total score is 35 with an ideal score of 45, resulting in a percentage of 80%. The final conclusion of the assessment is that the human reSource management mission in this quality system is very feasible to use.

**Table 10. Results of Academic Assessment 1 (A1) on Human Resource Management SOP**

No.	Aspect	X1	X2	X3	X4
1	Employee Recruitment SOP	4	4	4	4
2	Employee Selection SOP	4	4	4	4
3	Labour Contract SOP	4	4	4	4
4	SOP Traning	4	4	4	4
5	SOP for Overtime Work Hours	4	4	4	4
	Total	16	16	16	16

**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: According to quality policy, X2: Realistic, X3: Economical, X4: Safe

**Table 11. Results of Academic Assessment 2 (A2) of Human Resource Management SOP**

No.	Aspect	X1	X2	X3	X4
1	Employee Recruitment SOP	4	4	4	4
2	Employee Selection SOP	4	4	4	4
3	Labour Contract SOP	4	4	4	4
4	SOP Traning	4	4	4	4
5	SOP for Overtime Work Hours	4	4	4	4
	Total	16	16	16	16

**Source:** Validation questionnaire table, processed by researchers in 2023

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Description: X1: According to quality policy, X2: Realistic, X3: Economical, X4: Safe

**Table 12. Results of Academic Assessment of Human Resource Management SOP**

No.	Aspek	X1	X2	X3	X4
1	Employee Recruitment SOP	4	4	4	4
2	Employee Selection SOP	4	4	4	4
3	Labour Contract SOP	4	4	4	4
4	SOP Training	4	4	4	4
5	SOP for Overtime Work Hours	4	4	4	4
	Total	16	16	16	16

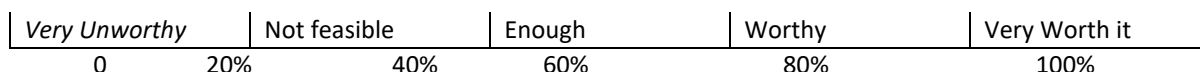
**Source:** Validation questionnaire table, processed by researchers in 2023

Description: X1: According to quality policy, X2: Realistic, X3: Economical, X4: Safe

$$\text{Presentase} = \frac{A1 + A2 + P}{\text{Total Ideal Score}} \times 100\%$$

$$\text{Presentase} = \frac{80+80+80}{300} \times 100\%$$

$$\text{Presentase} = \frac{240}{300} \times 100\% = 80\%$$



- 1) From the aspect of contribution to management Soup, the following scores were obtained: academican 1 (16), academican 2 (16) and practitioner (16). With a total score of 48 and an average of 16 points, it can be concluded that this management SOP has a high value from the aspect of contribution to the management SOP. So it can be interpreted that the objectives of this human reSource management can contribute to the management SOP worthy of being implemented at SMP Dharma Wirawan 08 Donomulyo.
- 2) From the realistic aspect for the human reSource management SOP, the scores are as follows: academics 1 (16), academics 2 (16) and practitioners (16). With a total score of 48 and an average of 16 points, it can be concluded that this human reSource management SOP has a high value from the realistic aspect. So it can be interpreted that this human reSource management SOP is realistic and feasible to be implemented at SMP Dharma Wirawan 08 Donomulyo.
- 3) From the directional aspect for the human reSource management SOP, the scores are as follows: academics 1 (16), academics 2 (16) and practitioners (16). With a total score of 48 and an average of 16 points, it can be concluded that this human reSource management objective has a high value from the directed aspect. Which can be interpreted that the objectives of human reSource management are directed and feasible to be applied at SMP Dharma Wirawan 08 Donomulyo.

Based on the assessment of the human reSource management SOP with the three aspects above, the following results are obtained from academic expert 1 (80), academic expert 2 (80) and practitioner expert (80) the total score is 240 with an ideal score of 300, resulting in a percentage of 80%. The final conclusion of the assessment is that the human reSource management SOP in this quality system is very feasible to use.

## Design and Content Structure Test

After the preparation of the quality system by researchers and obtaining validation from academic experts and expert practitioners, So a small-scale trial was carried out by expert practitioner Slamet Riyadi, S.Pd for Some time to find out whether the HR management system can be implemented properly at school. The trial for the human reSource management system was conducted from employee recruitment to overtime work.

Comments from the head of Slamet Riyadi, S.Pd as the user

"The system made is in accordance with expectations. Only Some improvements are needed for the detailed procedures in the SOP. And the use of language needs to be further refined"

## Research and Development of Human Resource Management System at SMP Dharma Wirawan 08 Donomulyo

So based on the assessment of the three validators from the assessment of the four aspects for the Human Resource Management SOP as much as 80% which means it is feasible to use.

### Evaluation of Design Test Results

The quality system that has been tested is So revised again to correct the deficiencies contained in the quality system. Input provided by academic experts and practitioners becomes a reference for researchers in evaluating the quality system in the input provided by the validator:

Comments from Practitioner, Mr Slamet Riyadi, S.Pd "The HR management system made is in accordance with expectations. Only Some improvements are needed for the detailed procedures in the SOP. And the use of language needs to be further refined" Based on the input provided by academic experts and users during the evaluation stage of the product design test results, this is what researchers use as a guideline to improve the HR management system that is not perfect. So the improved HR Management System will later become the finished product of this research.

### Communication of Design Test Results and Content Structure

Quality system products that have received input from the three validators, So improvements are made by researchers based on the input obtained. To make users more familiar with the quality system that was compiled, a workshop on the application of the human reSource management quality system was given to teachers and employees. The final product that has been approved by academic experts and practitioners can So be applied to Donomulyo Islamic Junior High School.

## IV. CONCLUSION

The results of the development carried out by researchers are in the form of a human resource management system, there are several advantages and disadvantages, namely:

### 1. The advantages

- a. In accordance with the management function which has planning, implementation, and evaluation
- b. Has gone through validation trials by two validators, namely from expert validators and practitioner validators.

### 2. Weaknesses

- a. SOP only in the field of human resource management
- b. The SOP developed is only limited to two validations and has not been tested as a whole.

## REFERENCES

- 1) Alma, B., Riduwan & Sunarto, 2007. Pengantar Statistika Untuk penelitian : Pendidikan, Sosial, Komunikasi, Ekonomi dan Bisnis. Bandung: Alfabeta.
- 2) Mariot Effendi. 2010. Manajemen Sumber Daya Manusia. Cetakan Dua, Jakarta: PT. Gramedia Widia Sarana Indonesia
- Mathis, Robert L.2011. Terjemahan Diana Angelina. Manajemen Sumber Daya Manusia. Buku Dua Edisi Pertama. Jakarta: Salemba Empat.
- 3) Mulyadi (2010:5) dalam bukunya yang berjudul "Sistem Akuntansi"
- 4) Mulyadi. (2016). Sistem Informasi Akuntansi. Jakarta: Salemba Empat.
- 5) S.P,Hasibuan, Malayu. 2013. Manajemen Sumber Daya Manusia. Jakarta: PT Bumi Aksara
- 6) Sadia, I Wayan. (2014). Model- Model Pembelajaran Sains KonstruktifAistik. Yogyakarta. Graha Ilmu.
- 7) Sugiyono 2011. Metode penelitian kualitatif dan R & D. Alfabeta



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## Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa



Dr. Fatma Khalfallah

**ABSTRACT:** Our principal objective is to implement a conditional CAPM that, in addition to the global market risk, specifies the level of market integration, evaluates exchange rate risk, and accounts for local market risk. To investigate the potential for portfolio diversification for foreign investors in this region by examining the impact of financial crises on the evolution of national markets in the MENA region's financial integration with the global market as well as with the three selected developed markets, namely France, Great Britain, and the United State. In order to test a conditional version of De Santis and Gerard's ICAPM by admitting a specification of a multivariate GARCH process, this line of research has used a particular methodology (MGARCH).

**KEYWORDS:** financial crisis, ICAPM, international diversification, financial integration.

### INTRODUCTION

In modern portfolio theory and with the famous Markowitz theory (52), international diversification is an integral feature of international financial markets.

Any investor will certainly prefer investment opportunities that offer the most attractive prospects all else being equal, the rate of return taken in isolation is not sufficient to characterize an investment opportunity. It is also necessary to consider possible deviations of the rate of return from its expected value, which brings us back to the concept of uncertainty or risk.

Thus, several potential benefits have encouraged investors to internationalize their portfolios; risk reduction, performance improvement. However, these benefits are directly related to the nature of the financial market structures of the countries involved (Hasan and Simaan 2000).

In addition, several factors present an obstacle to the gains of international diversification. Thus, previous works have shown that the exchange rate risk and the political risk present major limits to the benefits resulting from the strategy of international diversification ( Eun and Resnik (1987), Cosset and Suret (1995) ).

Over time, and depending on the events that have occurred in the financial markets, particularly the incidence of financial crises, the debate has focused on the significant impact of these crises on international portfolio diversification strategies.

Indeed, the strong financial integration between financial markets constitutes a major concern for the investor in search of international portfolio diversification. Since, the direct consequence of financial interdependencies is the propagation of volatility on stock markets.

This transmission of volatility manifests itself in the instability of financial markets in the prices and returns of financial assets and in the levels of stock market indices.

In this context, the international investor is confronted with this risk, which presents a threat that prevents them from achieving their objectives in international diversification strategies.

This observation opens up a rich field of research, and several empirical works have taken into consideration the intensity of the changes that have hit the global financial system since the 1987 crisis.

The first line of research was conducted by Roll (1988) and Miniskey (1992) on this crash. Then other works examined the crises of emerging countries "the Asian crisis, the Mexican crisis" such as Karyoli and Stulz (1996), Schwebach et al (2002), they underlined the stake of the strategy of international diversification in a context revived by rather strong financial disturbances.

As a result, the second line of research studied the effectiveness of this strategy and evaluated the expected gains from international diversification.

Thus, the research focused on developed markets and especially on the emerging markets of East Asia, Latin America and Central Europe with studies by, (Middleton et al (2008), Robert G. Bowman, Kam Fong Chan and Matthew R. Comer (2010), Jacek Niklewski and Timothy Rodgers (2011) and Robert Vermeulen (2013).

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The conclusion drawn from this strand of research is that with the growth of comovements between developed and emerging markets and the frequent emergence of financial crises that characterize East Asia, Latin America, and Eastern Europe, the investor should target other emerging markets that provide advantages in managing their portfolio.

Recently, the MENA region has been under the scrutiny of some works in order to measure the potential profit of diversification that it can offer to foreign investors, such as Abraham et al (2001), Simon Neaime (2005,2012), Lagoarde-Segot et al (2007), Cheng et al (2010), Dağlı, H et al (2012) and Balcılar, M et al (2015).

In our turn, in our empirical investigation, we are interested in eight MENA countries (Tunisia, Morocco, Egypt, Turkey, Jordan, Saudi Arabia, United Arab Emirates), three developed countries (United States, Great Britain and France) and the world market, with the objective of measuring the degree of integration of each MENA country in our sample with the world market and to answer the following question: For a foreign investor, are the MENA stock markets advantageous in terms of diversification gain in a context revived by crises?

To achieve this objective, a literature review on international diversification during financial crises will be presented in a first section, as well as an empirical study of the impact of the subprime crisis on MENA stock markets in terms of portfolio management performance which will be the subject of a second section.

### LITERATURE REVIEW

Roll (88) showed that during the crash 87 all stock prices of 23 global financial markets studied have sharp declines around 20% per month, similarly the correlations between countries are mainly positive but moderate in size.

Minsky (1992) examined the same crisis by finding that the crash can have a major impact on the architecture of financial markets, he indicated that the crisis has sown the seeds of structural changes across international financial markets.

As a result, the studies of Longin and Solnik (95), Solnik (97), Karolyi and Stulz (1996), Kronor and Ng (1998) Gros Lambert (2000) have highlighted the increase in correlations of stock market indices during periods of crisis marked by a strong movement of volatility.

Garnaut (1998) argued that the Asian crisis had a major structural impact on the financial architecture of the region through the increase in the degree of correlations.

Schwebach et al (2002) confirmed this result and indicated that correlations between countries increased from 0.18 to 0.274 during the first phase of the crisis and from 0.451 to 0.531 during the second phase, the same results are also affirmed by Bekaert et al (2005).

All these results call into question the effectiveness of international diversification strategy.

Thus, Wan-juin Paul chiou (2008) examined the comparative benefits of international diversification through the analysis of the indices of 21 developed countries and 13 developing countries over a period from January 1988 until December 2004.

To properly assess the gains of international diversification, two simple measures are used, the increase in the risk-adjusted premium by investing in the maximum risk-adjusted return portfolio and the reduction in volatility by investing the minimum variance portfolio on efficient international frontiers.

The empirical results suggest that investors in less developed countries, particularly East Asia and Latin America, benefit from regional and international diversification more than those in developed countries. The study found that the absolute values of the gains are reduced over time due to the integration and financial crises of the international financial market.

However, (Middleton et al (2008) they showed that the opportunities to invest in emerging markets of Central Europe are still significant, even in times of financial crisis.

Lagoarde-Segot, T et al (2009) tested the contagion between the G7 markets through the study of stock market linkages in order to identify the benefits of international diversification, their results show that during periods of turmoil the interdependence is increased but despite this context the benefit is still there for fund managers in these markets, it seems to be robust to strong changes in volatility

Robert G. Bowman, Kam Fong Chan, and Matthew R. Comer (2010) examined the response of global equity markets to the 1997 Asian crisis. The study included 39 countries a portfolio of 17 emerging countries, and a portfolio of 22 developed countries.

They showed that the correlations of returns in the countries during the Asian crisis was increased dramatically. This indicates that the benefits of international diversification were significantly reduced, but not necessarily eliminated, during the crisis. Following the crisis, they found that correlations declined, but not to the pre-crisis level, so the benefits of international diversification are available, but they are diminished.

Jacek Niklewski and Timothy Rodgers (2011) sought to answer the crucial question of whether the changes in financial market architectures caused by the global financial crisis have had a permanent impact on international diversification? As such, they

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sought to examine the conditional correlations between U.S. equity markets and a number of developed, emerging and frontier markets.

They pointed out that the increase in correlation during and after the crisis has a direct impact on international diversification, such that investing in emerging and frontier markets has become less attractive to international portfolio managers.

Vermeulen Robert (2013) empirically examined during the period of 2001 to 2009, the portfolios of international investors before and during the global financial crisis for 22 countries. The results indicate that during the crisis international investors rebalanced their portfolios towards the less correlated markets.

Moreover, the author emphasized that the most important thing here is not the diversification in silk but the diversification where investors manage to hang less correlated stocks when the market situation is very volatile.

However, the question of expected gains from international diversification remains understudied for certain regions such as the Middle East and North Africa: MENA.

Some works have explored this area in order to identify for the international investor the existing opportunities to diversify his portfolio on these markets.

Indeed, Ali F. Darrat et al (2000) examined the degree of integration of three stock markets: Morocco, Jordan and Egypt, using the causality tests of Granger (69) and the cointegration tests of Johnson (88).

They showed that these emerging countries are globally segmented and regionally integrated which means that these studied MENA markets offer diversification potential for international investors.

Abraham et al (2001) selected three oil-producing markets in the Gulf region for a period from 1993 to 1998, with the aim of assessing the substantial benefits of diversification in these markets.

Indeed, using the mean-variance paradigm of Markowitz (59), they highlighted a low correlation of returns between these markets studied and the They indicated that the allocation of funds can be extended up to (20-30%) into the U.S. equity markets, which offers an important opportunity for investors to integrate securities from these markets into their portfolios to enhance returns and reduce risk.

They indicated that the allocation of funds can be extended up to (20-30%) in the stock markets.

In (2003), Assaf selected six Middle Eastern stock markets: Bahrain, Kuwait, Oman, Saudi Arabia and the Emirates, similarly Hassan et al studied ten markets in this region and this was to examine the correlations between these markets.

They pointed out that the benefit of diversification is significant; some markets have low correlation with others and thus may be a better choice to reduce the risk of a regional investment portfolio.

Simon Neaime (2005) examined the integration of seven MENA markets with each other and with major global stock exchanges. Johnson's cointegration tests indicate that the GCC (Gulf Cooperation Council) stock exchanges still offer international investors potential for portfolio diversification.

Thomas et al (2005), using the cointegration method to examine the financial structure of the MENA region and their implication on international portfolio management, showed that the long-term correlation of these markets with the European as well as the US market is not stable. This indicates the existence of an opportunity to diversify the asset portfolio for the three categories of investors.

In (2007), the same authors examined the issue of international diversification this time on seven stock markets in the MENA region "Morocco, Tunisia, Egypt, Jordan, Lebanon, Turkey and Israel".

They constructed international portfolios in both dollars and local currencies for a period from 1998 to 2006, their results highlighted the presence of remarkable diversification benefits in the MENA region.

Cheng et al (2010) studied the return behavior of nine stock markets in the MENA region namely "Bahrain, Egypt, Israel, Jordan, Kuwait, Morocco, Oman, Saudi Arabia, and Turkey" by using different variants of CAPM.

They conducted a comprehensive empirical analysis on the dynamics of returns and risk in the MENA region, overall they found that the markets of Turkey and Israel are the most integrated with the global market, their results suggest that investing in most of the Arab markets in the MENA region for the period of study provides uncorrelated returns with the global market, thus an opportunity of profit by exercising international diversification in these markets.

Mansourfour et al (2010) divided the MENA region into two groups "oil producing countries" and non-oil producing group, in order to examine the role of each group in the benefit presented to international investors in terms of international diversification.

The results of this study indicate that oil-producing countries offer more advantageous opportunities for international portfolio diversification than the countries in the second group

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However, during the global financial crisis in 2008 the returns in these markets collapsed.

Neaime (2012) in this study the author analyzed the impact of the global financial crisis 2007-2008 on the emerging markets of the MENA region, through the examination of financial linkages between the markets of the MENA region and the most developed financial markets as well as the intra-regional linkages between the financial markets of the MENA countries among themselves.

Thus, through a detailed examination of financial integration in seven stock markets in the MENA region namely: Egypt, Jordan, Morocco, Tunisia, Kuwait, Saudi Arabia, and the Emirates with France, Great Britain, and the United States, while taking into consideration the volatility in these markets as well as the phenomenon of contagion during the period of the financial crisis, Simon Neaime showed that the stock market of Saudi Arabia is the market least affected by the global financial shock and still offers opportunities for portfolio diversification, while the markets of non-oil producing countries offer less opportunities for diversification.

Michael et al (2013) took by study the stock market comovements of the MENA region; "Egypt, Jordan, Saudi Arabia, Kuwait, Quater, Emirates" with the US market and between them for a period of 9 years from 2002 to 2010.

The results show that there is a modest degree of correlation between the MENA region and the U.S. market which implies opportunities for diversification in the near term.

Houseyin et al (2013) conducted an empirical study on emerging markets in Europe, the Middle East and Africa to identify the benefits of international diversification among the markets of the Czech Republic, Egypt, Hungary, Morocco, Poland, Russia, South Africa and Turkey.

Using Johansen's (1988) cointegration tests for a period from 1994 until 2010, they showed the existence of cointegration relationships between most of these markets with a finding that the benefits of portfolio diversification in these markets are limited for investors.

Mehmet Balcilar et al (2015) examined the opportunities for international diversification in the stock markets of GCC countries, some countries show segmentation with the global market during periods of disruption and thus can offer diversification opportunities despite the crisis environment.

Mouna Boujelbene et al (2015) conducted an empirical investigation on developed and emerging Islamic stock markets " European, Asian, North American, MENA and Latin American markets, with the aim of examining the benefits of international diversification during quiet and disruptive periods.

Their study using the multivariate cointegration test highlights that Islamic stock market movements are partially segmented, in addition the level of integration between markets tends to change over time especially during periods characterized by financial crises.

Their results suggest that Islamic Shariah-compliant assets may offer potential diversification benefits, a finding that has important implications for the design of investment strategies for investors who wish to diversify their portfolios especially during periods of crisis.

In sum, the works that are interested in the study of the dynamics of the gains expected from international diversification as a function of integration, they have ignored the exchange rate risk, in other words, they have assumed that investors do not hedge their exposure to exchange rate risk, so that the price of exchange rate risk is equal to zero, as is the price of local market risk " Giovanni and Jorion (89), Harvey (91), Chan et al.

The same approach was adopted by the works that considered the effect of financial crises " Roll (88), Rahm and Yung (94), Hamao et al (90), Arrouri and Jawadi (2011), Kenourgios et al (2011).

In addition, according to the literature review presented on the issue of international diversification for stock markets in the MENA region, we can see that the period of study is always short, the results of work are heterogeneous and fail to decide between the existence or nonexistence of opportunities for international diversification on the MENA region.

Also, the basic model; "the model of De Santis and Gerard (97)" which was adopted by the majority of previous works to identify the gains of international diversification is based on the assumption of perfect financial integration, however the reality on the financial markets that they are in a situation of partial segmentation, and this after the previous works of Bekaert and Harvey (95,97), Karolyi and Stulz (2002), Dumas et al (2003), Bar and Pristley (2004).

### 2-Methodology

Our contribution at this stage consists in applying a conditional CAPM that takes into account in addition to the global market risk; the specification of the degree of integration of the studied markets, the assessment of the exchange rate risk as well as the local market risk. In order to study the effect of financial crises on the evolution of financial integration of national markets in the MENA region with the global market as well as with the three selected developed markets namely France, Great Britain and the United States and thus to examine the possibilities of portfolio diversification for international investors in this region.



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So the methodology adopted for this line of research consists in testing a conditional version of MEDAFI of De Santis and Gerard (97), by admitting a specification of a multivariate GARCH process (MGARCH).

### The dynamic version of CAPM

In a context of perfect financial integration in the financial markets and with the PPP hypothesis verified, the international extension of the CAPM of Sharpe (64) and Linter (65) presented by Adler and Dumas (83), Solnik (77), Stulz (81), De Santis and Gerard (97) and others, can be written as follows\_

$$E(R_{it} / \Psi_{t-1}) - R_{ft} = \beta_{im,t-1} [E(R_{mt} / \Psi_{t-1}) - R_{ft}] ; \forall_i \quad (1)$$

$$\text{With } \beta_{im,t-1} \equiv \frac{\text{cov}(R_{it}, R_{mt} / \Psi_{t-1})}{\text{var}(R_m / \Psi_{t-1})} \quad (2)$$

This is the variable sensitivity of security i to the market portfolio m..

$R_{it}$  : The variable profitability of security i between (t-1) and t

$R_{ft}$  : The return on the risk-free asset between (t-1) and t..

$R_{mt}$  : The return on the global market portfolio between (t-1) and t.

All expectations are made conditional on the information vector available at time t-1.

Equation (1) can be rewritten as follows:

$$E(R_{it} / \Psi_{t-1}) - R_{ft} = \delta_{m,t-1} \text{cov}(R_{it}, R_{mt} / \Psi_{t-1}) \quad \forall_i \quad (3)$$

$$\text{With } \delta_{m,t-1} \equiv \frac{E(R_{mt} / \Psi_{t-1}) - R_{ft}}{\text{var}(R_m / \Psi_{t-1})}$$

This is the world market covariance risk price over time.

Relationship (3) is the most widely used formulation in empirical asset pricing work, and implicitly assumes that financial markets are integrated in a way that the market risk price equals zero; investors are not exposed to currency risk.

Implications for international portfolio diversification

In what follows, we will examine the implications of relationship (3) for international portfolio diversification.

Thus, let us consider two portfolios that present the same risk, the first one is internationally diversified noted I and the other one is purely domestic noted i. The CAPMT relationship described in equation (3) allows us to calculate the expected return on each of these portfolios.

The difference between the two expected returns can be interpreted as the ex-ante gain from international portfolio diversification (the benefit generated by holding international stocks).

This gain can be expressed as follows:

$$E(R_{It} - R_{it} / \Psi_{t-1}) \quad (4)$$

According to Black's (1972) separation theorem, portfolio profitability can be written as a form of a linear combination between the risk-free asset and the market portfolio  $R_{It} = \theta_{t-1} R_{mt} + (1 - \theta_{t-1}) R_{ft}$ , where  $\theta$  is the measure of risk aversion

$$\begin{aligned} \text{Thus, the excess return of the portfolio I is expressed as follows:} \quad & E(R_{It} / \Psi_{t-1}) - R_{ft} = \delta_{m,t-1} \text{cov}(\theta_{t-1} R_{mt}, R_{mt} / \Psi_{t-1}) \\ & = \delta_{m,t-1} \theta_{t-1} \text{var}(R_{mt}, / \Psi_{t-1}) \quad (5) \end{aligned}$$

The excess return of portfolio i is expressed as follows:

$$E(R_{it} / \Psi_{t-1}) - R_{ft} = \delta_{m,t-1} \text{cov}(R_{it}, R_{mt} / \Psi_{t-1}) \quad (6)$$

Since both portfolios have the same risk, the positive coefficient can be deduced from the following system

$$\text{var}(R_{it} / \Psi_{t-1}) = \text{var}(R_{It} / \Psi_{t-1}) \quad (7)$$

$$\text{var}(R_{it} / \Psi_{t-1}) = \theta_{t-1}^2 \text{var}(R_{mt} / \Psi_{t-1}) \quad (8)$$

$$\text{Let } \theta_{t-1}^2 = \frac{\text{var}(R_{it} / \Psi_{t-1})}{\text{var}(R_{mt} / \Psi_{t-1})} \quad (9)$$

According to equations (5) and (6), the gain of international diversification for a domestic investor according to the conditional version of the CAPM is given by the following relation:

$$E(R_{It} - R_{it} / \Psi_{t-1}) = \delta_{m,t-1} [\theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1}) - \text{cov}(R_{it}, R_{mt} / \Psi_{t-1})] \quad (10)$$

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A first intuition can be drawn from equation (10) by taking the particular case  $\theta = 1$

$$E(R_{it} - R_{it} / \Psi_{t-1}) = \delta_{m,t-1} [\text{var}(R_{mt} / \Psi_{t-1}) - \text{cov}(R_{it}, R_{mt} / \Psi_{t-1})] \quad (11)$$

Relation (11) presents the measure of portfolio diversification gains developed by De Santis and Gérard (97) for the case of the American investor, which is a special case of (10), according to their relation market  $i$  has the same portfolio risk of the world market at each point in time.

According to the relation (10), the expected gains from portfolio diversification are an increasing function of the price of the world market risk and the quantity of the specific risk considered.

However, our contribution at this level of research consists in developing a conditional version of the FEM which allows on the one hand to measure the expected gains from international diversification and on the other hand it must take into account other factors in addition to the global market risk.

The factors that are ignored by previous studies precisely in this topic, namely: the exchange rate risk, the local market risk and the specification of the degree of integration.

In this regard, the use model developed by Fatma Khalfallah (2023) is appropriate at this level

Thus, our version of conditional CAPM presents a mixed relationship between the price of market risk, exchange risk and domestic market risk and a measure of degree of financial integration is as follows:

$$E(R_{it} / \Psi_{t-1}) - R_{ft} = \phi_{t-1}^i \left[ \delta_{m,t-1} \text{cov}(R_{it}, R_{mt} / \Psi_{t-1}) + \sum_{c=1}^L \delta_{c,t-1} \text{cov}(R_{it}, R_{ct} / \Psi_{t-1}) \right] + (1 - \phi_{t-1}^i) [\delta_{i,t-1} \text{var}(R_{it} / \Psi_{t-1})] \quad (12)$$

Thus the model application of equation (12) for equations (5) and (6) is as follows.

For equation (5), the excess return on the portfolio  $I$  that is internationally diversified is written as a function of market risk and currency risk:

$$\begin{aligned} E(R_{It} / \Psi_{t-1}) - R_{ft} &= \left[ \delta_{m,t-1} \text{cov}(\theta_{t-1} R_{mt}, R_{mt} / \Psi_{t-1}) + \sum_{c=1}^L \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1}) \right] \\ &= \delta_{m,t-1} \theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1}) + \sum_{c=1}^L \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1}) \quad (13) \end{aligned}$$

For equation (6), the excess return of portfolio  $i$  that is purely domestic is written as a function of market risk and local market risk and a measure of degree of integration:

$$E(R_{it} / \Psi_{t-1}) - R_{ft} = \phi_{t-1}^i \left[ \delta_{m,t-1} \text{cov}(R_{it}, R_{mt} / \Psi_{t-1}) + (1 - \phi_{t-1}^i) [\delta_{i,t-1} \text{var}(R_{it} / \Psi_{t-1})] \right] \quad (14)$$

Thus, according to equations (13) and (14), the gain from international diversification according to the conditional version of the CAPM is given by the relation (15)

$$\begin{aligned} E(R_{It} - R_{it} / \Psi_{t-1}) &= \delta_{m,t-1} \left[ \theta_{t-1} \text{var}(R_{mt} / \Psi_{t-1}) - \phi_{t-1}^i \text{cov}(R_{it}, R_{mt} / \Psi_{t-1}) \right] + \\ &\left[ \sum_{c=1}^L \delta_{c,t-1} \text{cov}(R_{mt}, R_{ct} / \Psi_{t-1}) - (1 - \phi_{t-1}^i) \delta_{i,t-1} \text{var}(R_{it} / \Psi_{t-1}) \right] \quad (15) \end{aligned}$$

Then, relation (15) shows that the expected gain from international diversification strategies is determined as a function of the price of market risk, the amount of country-specific risk considered with a measure of the degree of integration  $\text{var}(R_{mt} / \Psi_{t-1}) - \phi_{t-1}^i \text{cov}(R_{it}, R_{mt} / \Psi_{t-1})$  the price of exchange rate risk  $\delta_{c,t-1}$  and local market risk  $\delta_{i,t-1}$

### The Data

Our study focuses on the economies of the MENA region, with data for the following countries: Tunisia, Morocco, Egypt, Turkey, Jordan, Saudi Arabia, the United Arab Emirates United Arab Emirates, France, Great Britain, the United States, and the global market. Then, four groups of data are considered: the monthly return series market as well as the world market, the series of real exchange rates expressed in US dollars exchange rate series expressed in U.S. dollars, the financial and macroeconomic variables used to macroeconomic variables used to condition the estimates of risk prices and the instrumental variables related to the degree of related to the degree of integration.

### The yield series

The observations used are monthly end-of-period prices from January 1995 to December 2013 for Morocco, Egypt, Turkey and Jordan, and from May

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2005 to December 2013 for Tunisia, Saudi Arabia and the United Arab Emirates.

Market prices are taken from Morgan Stanley Capital International (MSCI), and the market portfolio is approximated by the MSCI world index 25, these market returns are expressed in dollars and adjusted by dividends.

### Real exchange rate series

The monthly real exchange rates are expressed in terms of the U.S. dollar 27, and are taken from International Financial are extracted from International financial statistic (IFS) and obtained by subtracting nominal exchange rates exchange rates by the consumer price indexes (CPI).

### Global and local instrumental variables

The instrumental variables are used to condition estimating the prices of market risk, currency risk and risk local, like Hardouvelis et al (2006) and Carrieri and All (2007) we retain the following factors to condition estimating the prices of market risk and foreign risk :

- the monthly change in dividend yield ( dividend to price ratio) of the world market portfolio ( MSCI world index) over the 30-day eurodollar interest rate ( DRMDV)
- the monthly change in the premium term, it's the difference between a long interest rate ( 10 years us treasury notes) and short rate ( 3 months us treasury bills) (DEPTERM)
- the monthly change in the short term interest rate ( 3 months us treasury bills) ( DSHORT).
- the monthly change in the S&P's 500 stock market index (RSP)

-A constant term

all these information variables are extracted from the international datastream database and are used with a lag behind the series of excess returns.

for the risk of the local market of each country, we use the following set of information variables is determined by previous studies like Bekaert and Harvey, 1995; Gerard et al., 2003)

- a constant term
- the monthly change in the excess stock returns of each country (DRD)
- the monthly change in 1-month interest rate (DSHORT)
- the monthly change in the regional inflation rate ( VIR)

### 4- the instrumentals variables of financial integration

the degree of financial integration for each country is affected by some economic financial and sociopolitical factors at the local and international level. It is, therefore, necessary to identify the determinants of the degree of financial integration. To this end, we use the following variables information

- DGDP: each country's Gross domestic product (GDP) in volume, which is considered the most appropriate instrument to identify the level of integration by Carrieri et al. (2007) and Bhattacharya and Daouk (2002).
- INRD: the interest rate differential between the US market and the local market, this variable reflects the convergence of these emerging markets to the global market
- INFID the differential between the rate of inflation in each local market and the US, this variable highlights the volatility of exchange rates of the local currency and provides information on the investment costs and consequently the advantage of diversification

**Table 1: Anticipated Gains from International Diversification of MENA Markets for the Period 05-2005 to 12-2013 (%)**

	With the world market	With the French market	With the British market	With the American market
<b>Egypt</b>	<b>1.561</b> (1.2795)	<b>1.9299*</b> (1.2909)	<b>1.8199*</b> (1.1794)	<b>2.009*</b> (1.1905)
<b>Emirates</b>	<b>2.4695*</b> (0,2876)	<b>2.8905*</b> (0,3806)	<b>2.155*</b> (0,1887)	<b>2.305*</b> (0,1437)
<b>Jordan</b>	<b>3.8351*</b> (0,1117)	<b>4.491*</b> (0,2117)	<b>3.9075*</b> (0,1001)	<b>4.101**</b> (0,123)
<b>Morocco</b>	<b>3.8479**</b> (0,1776)	<b>3.201**</b> (0,2228)	<b>3.9978**</b> (0,1476)	<b>6.001**</b> (0,0869)
<b>Saudi Arabia</b>	<b>3.607*</b> (0,6223)	<b>4.5071***</b> (0,7023)	<b>4.0171*</b> (0,4988)	<b>3.9891*</b> (0,7117)

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<b>Tunisia</b>	<b>5.021***</b> (0,0889)	<b>6.331**</b> (0,0569)	<b>5.906***</b> (0,0780)	<b>7.122***</b> (0.033)
<b>Turkey</b>	<b>1.132</b> (2,3441)	<b>2.0021</b> (2,0441)	<b>1.977</b> (2,2911)	<b>2.881</b> (2,0001)

\* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level,

(.) Standard deviation is reported in parentheses.

According to Table 1, the results show a statistically and economically significant advantage of international diversification for all the markets studied with the global market, the French market, the British market and the American market except for Turkey.

Indeed, over the period of study, Egypt the most correlated with the global market with an average correlation of 62% has the lowest average annual profits 1.56%, the same finding with the French market, British and American; the strongest correlation with a low potential diversification that does not exceed 2%.

On the other hand, Tunisia the least correlated market with the global market, the French market, the British market and the U.S. market with respective average correlations (32%, 31%, 32%, 31%) and presents the highest profits of diversification (5%, 6.33%, 5.9%, 7.12%) .

Morocco presents a diversification gain for the American investor of 6% and around 4% with the world, French and British markets with an average correlation of 40% with all these markets. The same result is also found for Jordan with very close values for the correlation as well as the gains of international diversification.

For the Gulf countries, Emirates and Saudi Arabia have a correlation at the turn of 50% and 40% with the world market as well as with the other developed markets, they present significant diversification gains on average of 2.5% for Emirates and at the turn of 4% for Saudi Arabia.

The results reported in this table of the evolution of diversification gains, indicate that the estimated gains of international portfolio management have significantly decreased during the crisis phase, contrary to the opinion among financial experts and academics.

Indeed, the anticipated gain of Egypt's diversification with the world market and developed markets presents oscillations with positive and negative values that explains the low potential of diversification, a sharp drop is recorded twice; (-25%) during the crisis phase 2007-2009 and (-28%) during the revolution period 2010-2011.

For Morocco, the profit values are more important before the crisis period, at the time of shock the gains noted a considerable fall (-13%), this result valid with the world market, French, British and especially with the American market the gains remained slightly weak until the end of the period of study and this compared to the period before the crisis.

For Jordan, the graph shows a sharp drop of (-23%) between 2008 and 2009 with the world market and the developed markets in our sample. These same findings are also valid for the Saudi and UAE markets with falls of 20% and 27% during the crisis phase.

For Tunisia, the subprime crisis has also affected the gains on this market with a drop in value (-12%) as well as during the period of revolution 2010-2011, this collapse is recorded with the global market, French, British and American.

### Financial integration

- a) The degree of financial integration

**Table 2: Estimation of dynamic financial integration**

	EGYPT	EMIRATES	JORDAN	MOROCCO	SAUDI ARABIA	TUNISIA	TURKEY
<b>Panel A: Estimation results of the degree of integration as a function of the instrumental variables</b>							
<b>Cons</b>	- 0.099***	-0.0152*	0.022***	-0.0062	-0.106*	0.23	0.0098**
<b>DGDP</b>	-0.0037	0.002	6.7E-04	0.001	0.002	-0.0019	4.8E-04
<b>INRD</b>	0.004	-0.0153*	-0.0065*	0.001	-0.0066	-0.0076	-3.1E-04*
<b>IFRND</b>	0.0756	0.0018	-0.0029**	-0.0045	0.0019	9E-04	2E-04
<b>Panel B: Financial Integration Measurement Statistics</b>							
$\phi_{min}$	0.116	0.103	0.098	0.116	0.098	0.003	0.075
$\phi_{max}$	0.889	0.913	0.977	0.903	0.9	0.901	0.9
$\phi_{moy}$	0.663***	0.651***	0.578***	0.633***	0.601***	0.457***	0.448***
Std.dev	0.7868	0.00674	0.0089	0.0104	0.00747	0.0011	0.00015

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\*\*\*, \*\*, \*: significant degree at 1%, 5% and 10%.

+++, Indicates that the degree of integration is significantly different from zero according to a Student's t test with two degrees of freedom.

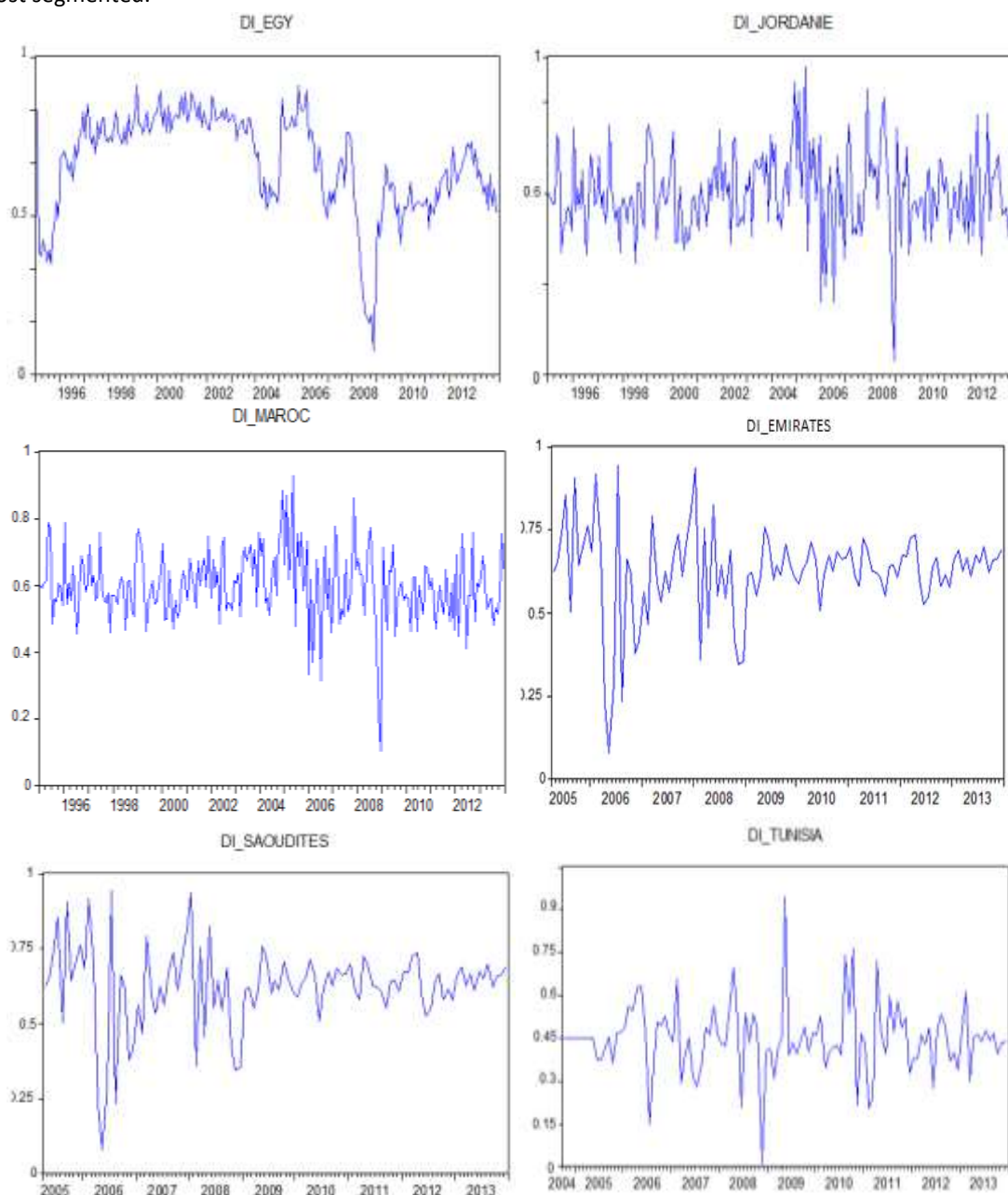
This table reports the estimation results for the financial integration metrics.  $\phi_{min}$ ,  $\phi_{max}$ , and  $\phi_{moy}$  show the maximum, minimum and average degree of integration respectively. The robust standard deviations are indicated by the Std.dev.

According to the estimation results reported in Table 1 panel A, the dynamics of financial integration in our sample is explained especially by the differential between the local interest rate and that of the US and the differential between the local inflation rate and that of the US.

According to the statistics (panel B), Turkey and Tunisia have the lowest degree of integration with values of 0.448 and 0.457 respectively. They are the least integrated countries in the world market as well as the Jordanian market with a level equal to 0.578.

In contrast, Egypt has the highest average level of financial integration with a value of 0.663. After that, we find the Gulf countries Emirates (0.651) and Saudi (0.601) and Morocco with a value of 0.633.

Our results at this stage are close to the results of Khaled Guesmi et al (2014) who studied the financial integration process of 4 countries in the MENA region (Turkey, Israel, Jordan and Egypt), they also found that Egypt the most integrated market and Jordan is the most segmented.





Graphic 1: The evolution of the level of financial integration

Graphic 1 traces the evolution of the level of financial integration of seven MENA markets with the global market and shows that this integration is not homogeneous. According to the chart, Egypt is the most integrated market with a threshold of 85% during the period 1998-2000, after which the level dropped to around 70% for the rest of the period.

For the Emirates, their degree of integration with the global market has experienced two peaks during the year 2005 and the year 2010 with a level of 90%. The same thing for Saudi Arabia has experienced a financial integration rate between 2006 and the end of 2007 with a value that reaches a threshold of 85%.

This upward trend can be explained by the increase in investment capital flows to these countries.

Turkey, Tunisia and Jordan show the lowest level of integration with an average rate of 50% during the study period. However, all of the markets studied experienced a considerable drop during the 2007-2008 period.

This decline is due to the impact of the subprime crisis on these markets and on the global market in general.

In sum, an upward trend then is recorded when examining the dynamics of financial integration in MENA markets. In what follows, we will conduct a comparative analysis between financial integration and conditional correlation in order to confirm these results.

b) Measure of integration versus conditional correlation.

Table 3: Statistics of conditional correlations

	EGYPT	EMIRATES	JORDAN	MOROOCO	SAUDI ARABIA	TUNISIA	TURKEY
$\rho_{min}$	0.786	0.397	0.298	0.3	0.177	0.477	0.455
$\rho_{max}$	0.813	0.925	0.901	0.887	0.947	0.937	0.803
$\rho_{moy}$	0.801***	0.831***	0.723***	0.697***	0.733***	0.788***	0.701***

$\rho_{max}$ ,  $\rho_{min}$  and  $\rho_{moyenne}$  mean are the maximum, minimum and mean correlation coefficients, which are obtained from the multiple bivariate DCC-GARCH processes..

\*\*\* indicates that the coefficient in question is significantly different from zero.

The purpose of correlation estimation is to provide conditional investors with a complete picture of the actual financial and economic situation in each market.

Since the correlations approach is a technique for measuring financial integration that has been applied by previous works " Longin and Solnik (1995), Kroly and Stulz (1996), Manuel and Croci (2004). However, the appeal to the simple calculation of conditional correlations does not allow us to affirm this purpose, which justifies the use of instrumental variables of financial integration " Dumas et al (2006), Carrieri et al (2007) ".

The examination of this observation is presented in Table 6, which compares the integration index of each local market to its conditional correlation with the world market. Then the analysis of the statistics shows us that the conditional correlations in sum are more important in terms of values compared to the financial integration index.

Egypt has an average correlation coefficient of 0.801 against an average degree of integration 0.663. Similarly, for Emirates, Jordan, Saudi Arabia, Tunisia and Turkey.

However, an almost small gap is observed for Morocco 0.697 against 0.633.

To summarize, the dynamics of conditional correlations show an overestimation of the degree of integration of the markets studied, so our results confirm the questioning of the relevance of the correlation technique as an index of financial integration.

### CONCLUSION

The conclusions drawn from the literature indicate that the framework of financial crises, which is characterized by strong interdependence between financial markets and high volatility, is a major concern for the investor seeking international portfolio diversification.

Thus, with the growth of co-movements between developed and emerging markets and the frequent emergence of financial crises that characterize East Asia, Latin America and Eastern Europe, the investor should target other emerging markets such as MENA countries.

The appreciable profits realized by the strategy of international portfolio diversification have been detected by the works of Markowitz (52), Grubel (1968), Levy and Sarnat (1972), Solnik (1974) and Hilliard (1979).

In addition to these classic works, a group of studies have explored the benefits of portfolio diversification among developed markets as well as emerging countries such as Harvey (91), Campbell and Hamao (1992), Odier and Solnik (93), Solnik (95) Gerke et al (2005), Markellos and Siriopoulos (1997), Rezayat and Yavas (2006), Chiou (2008), Chonghui jiang et al (2010)

During periods of financial crisis the results found by several studies question the effectiveness of international diversification strategy. Garnant (1998) Schwebach et al (2002) Middleton et al (2008), Robert G. Bowmana, Kam Fong Chan and Matthew R. Comer (2010) RG Bowman et al (2010) Robert vermenh (2011)

For the MENA region the axis of work that has been conducted is oriented towards the objective of seeking opportunities of international diversification for the international investor in these markets following the example of Darrat et al (2000) Abraham et al (2001) 2003), Assaf Simon Neaime (2005) Thomas et al (2005 (2007), Cheng et al (2010) Mansourfour et al (2010) S. Neaime (2012) Graham et al (2013) Houseyin et al (2013), Mehmet Balcilar et al (2015).

However, the classical and recent works on this topic there in times of crisis and non-crisis have carried some limitations in their basic strategies. Indeed, the assumption of the absence of hedging to international investment has made ignore the exchange rate risk in the modeling as well as the local risk.

In addition, most of the works have adopted only the assumption of perfect financial integration in the financial markets when studying the expected gains from international diversification.

In this regard, our contribution to the literature has sought to test a conditional version of CAPMFI that includes both in addition to global market risk, foreign exchange risk and local market risk in order to identify the potential of diversification that offers MENA countries for investors and their significance in times of crisis with a consideration of the specification of degree of integration of markets studied.

Then, our results indicated that the anticipated gains from diversification sought in MENA markets are present and significant during the study period with temporary absence during the mortgage crisis phase for all the studied markets and during any period of political disturbance, the case of revolution for Egypt and Tunisia.

### REFERENCES

- 1) Abbes, M. B., & Trichilli, Y. (2015). Islamic stock markets and potential diversification benefits. *Borsa Istanbul Review*, 15(2), 93-105.
- 2) Abraham, A., Seyyed, F. J., & Al-Elg, A. (2001). Analysis of diversification benefits of investing in the emerging gulf equity markets. *Managerial Finance*.
- 3) Adler, M., & Dumas, B. (1983). International portfolio choice and corporation finance: A synthesis. *The Journal of Finance*, 38(3), 925-984.
- 4) Arouri, M. E. H., & Jawadi, F. (2010). On the impacts of crisis on the risk premium: Evidence from the US stock market using a conditional CAPM.
- 5) Assaf, A. (2003). Transmission of stock price movements: the case of GCC stock markets.
- 6) Balcilar, M., Demirer, R., & Hammoudeh, S. (2015). Regional and global spillovers and diversification opportunities in the GCC equity sectors. *Emerging Markets Review*, 24, 160-187.
- 7) Barr, D. G., & Priestley, R. (2004). Expected returns, risk and the integration of international bond markets. *Journal of International money and finance*, 23(1), 71-97.
- 8) Bekaert, G., & Harvey, C. R. (1995). Time-varying world market integration. *the Journal of Finance*, 50(2), 403-444.
- 9) Bekaert, G., & Harvey, C. R. (1995). Time-varying world market integration. *the Journal of Finance*, 50(2), 403-444.
- 10) Bekaert, G., & Harvey, C. R. (1997). Emerging equity market volatility. *Journal of Financial economics*, 43(1), 29-77.
- 11) Bowman, R. G., Chan, K. F., & Comer, M. R. (2010). Diversification, rationality and the Asian economic crisis. *Pacific-Basin Finance Journal*, 18(1), 1-23.

## Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa

- 12) Cheng, A. R., Jahan-Parvar, M. R., & Rothman, P. (2010). An empirical investigation of stock market behavior in the Middle East and North Africa. *Journal of Empirical Finance*, 17(3), 413-427.
- 13) Chiou, W. J. P. (2008). Who benefits more from international diversification?. *Journal of International Financial Markets, Institutions and Money*, 18(5), 466-482.
- 14) Cosset, J. C., & Suret, J. M. (1995). Political risk and the benefits of international portfolio diversification. *Journal of International Business Studies*, 26(2), 301-318.
- 15) Dağlı, H., Sivri, U., & Bank, S. (2012). International portfolio diversification opportunities between Turkey and other emerging markets. *International Journal of Trade and Global Markets*, 5(1), 4-23.
- 16) Darrat, A. F., Elkhal, K., & Hakim, S. R. (2000). On the integration of emerging stock markets in the Middle East. *Journal of Economic Development*, 25(2), 119-130.
- 17) De Santis, G. (1997). Stock returns and volatility in emerging financial markets. *Journal of International Money and finance*, 16(4), 561-57
- 18) De Santis, G. (1997). Stock returns and volatility in emerging financial markets. *Journal of International Money and finance*, 16(4), 561-579.
- 19) Dumas, B., Harvey, C. R., & Ruiz, P. (2003). Are correlations of stock returns justified by subsequent changes in national outputs?. *Journal of international Money and Finance*, 22(6), 777-811.
- 20) Eun, C. S., & Resnick, B. G. (1986). *International diversification under estimation risk: actual vs. potential gains*. Graduate School of Business, Indiana University.
- 21) Fatma Khalfallah (2023). The risk premium in times of financial crisis: an assessment from ICAPM on the MENA region . *Accounting 9 (2023). GrowingScience*
- 22) Giovannini, A., & Weil, P. (1989). Risk aversion and intertemporal substitution in the capital asset pricing model.
- 23) Graham, M., Kiviaho, J., Nikkinen, J., & Omran, M. (2013). Global and regional co-movement of the MENA stock markets. *Journal of Economics and Business*, 65, 86-100.
- 24) Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: journal of the Econometric Society*, 424-438.
- 25) Hamao, Y., Masulis, R. W., & Ng, V. (1990). Correlations in price changes and volatility across international stock markets. *The review of financial studies*, 3(2), 281-307.
- 26) Harvey, C. R. (1991). The world price of covariance risk. *The Journal of Finance*, 46(1), 111-157.
- 27) Hasan, I., & Simaan, Y. (2000). A rational explanation for home country bias. *Journal of International Money and Finance*, 19(3), 331-361.
- 28) Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control*, 12(2-3), 231-254.
- 29) Karolyi, G. A., & Stulz, R. M. (1996). Why do markets move together? An investigation of US-Japan stock return comovements. *The Journal of Finance*, 51(3), 951-986.
- 30) Karolyi, G. A., & Stulz, R. M. (1996). Why do markets move together? An investigation of US-Japan stock return comovements. *The Journal of Finance*, 51(3), 951-986.
- 31) Karolyi, G. A., & Stulz, R. M. (2003). Are financial assets priced locally or globally?. *Handbook of the Economics of Finance*, 1, 975-1020.
- 32) Kenourgios, D., Samitas, A., & Paltalidis, N. (2011). Financial crises and stock market contagion in a multivariate time-varying asymmetric framework. *Journal of International Financial Markets, Institutions and Money*, 21(1), 92-106.
- 33) Lagoarde-Segot, T., & Lucey, B. M. (2007). International portfolio diversification: Is there a role for the Middle East and North Africa?. *Journal of Multinational Financial Management*, 17(5), 401-416.
- 34) Lagoarde-Segot, T., & Lucey, B. M. (2007). International portfolio diversification: Is there a role for the Middle East and North Africa?. *Journal of Multinational Financial Management*, 17(5), 401-416.
- 35) Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The journal of finance*, 20(4), 587-615.
- 36) Longin, F., & Solnik, B. (1995). Is the correlation in international equity returns constant: 1960–1990?. *Journal of international money and finance*, 14(1), 3-26.
- 37) Longin, F., & Solnik, B. (1997). Correlation structure of international equity markets during extremely volatile periods. Working Paper 97-039, ESSEC.
- 38) Mansourfar, G., Mohamad, S., & Hassan, T. (2010). The behavior of MENA oil and non-oil producing countries in international portfolio optimization. *The Quarterly Review of Economics and Finance*, 50(4), 415-423.
- 39) Markowitz, H. M. (1952). Portfolio Selection, the journal of finance. 7 (1).



## Financial Crises and the Success of Global Portfolio Management: A Study of the Middle East and North Africa

- 40) Middleton, C. A. J., Fifield, S. G. M., & Power, D. M. (2008). An investigation of the benefits of portfolio investment in Central and Eastern European stock markets. *Research in International Business and Finance*, 22(2), 162-174.
- 41) Middleton, C. A. J., Fifield, S. G. M., & Power, D. M. (2008). An investigation of the benefits of portfolio investment in Central and Eastern European stock markets. *Research in International Business and Finance*, 22(2), 162-174.
- 42) Minsky, H. P. (1992). The financial instability hypothesis, Working paper No. 74, The Jerome Levy Economics Institute of Bard College, New York. In *Handbook of radical political economy*. Cheltenham: Edward Elgar.
- 43) Neaime, S. (2005). Financial market integration and macroeconomic volatility in the MENA region: an empirical investigation. *Review of Middle East Economics and Finance*, 3(3), 59-83.
- 44) Neaime, S. (2005). Financial market integration and macroeconomic volatility in the MENA region: an empirical investigation. *Review of Middle East Economics and Finance*, 3(3), 59-83.
- 45) Neaime, S. (2012). The global financial crisis, financial linkages and correlations in returns and volatilities in emerging MENA stock markets. *Emerging Markets Review*, 13(3), 268-282.
- 46) Neaime, S. (2012). The global financial crisis, financial linkages and correlations in returns and volatilities in emerging MENA stock markets. *Emerging Markets Review*, 13(3), 268-282.
- 47) Niklewski, J., & Rodgers, T. (2011). International portfolio diversification and the 2007 financial crisis: will structural change in equity market correlations have a lasting impact on optimal portfolio selection?. *Economics, Finance and Accounting, Applied Research Working Paper Series*.
- 48) Niklewski, J., & Rodgers, T. (2011). International portfolio diversification and the 2007 financial crisis: will structural change in equity market correlations have a lasting impact on optimal portfolio selection?. *Economics, Finance and Accounting, Applied Research Working Paper Series*.
- 49) Rahman, H., & Yung, K. (1994). Atlantic and Pacific stock markets—correlation and volatility transmission. *Global Finance Journal*, 5(1), 103-119.
- 50) Roll, R. (1988). The international crash of October 1987. *Financial analysts journal*, 44(5), 19-35
- 51) Schwebach, R. G., Olienyk, J. P., & Zumwalt, J. K. (2002). The impact of financial crises on international diversification. *Global Finance Journal*, 13(2), 147-161.
- 52) Schwebach, R. G., Olienyk, J. P., & Zumwalt, J. K. (2002). The impact of financial crises on international diversification. *Global Finance Journal*, 13(2), 147-161.
- 53) Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, 19(3), 425-442.
- 54) Stulz, R. (1981). A model of international asset pricing. *Journal of financial economics*, 9(4), 383-406.
- 55) Vermeulen, R. (2013). International diversification during the financial crisis: A blessing for equity investors?. *Journal of International Money and Finance*, 35, 104-123.
- 56) Vermeulen, R. (2013). International diversification during the financial crisis: A blessing for equity investors?. *Journal of International Money and Finance*, 35, 104-123.



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## Teacher's Basic Behaviour as Motivation for Student Learning

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**ABSTRACT:** Teachers are essential stakeholder that cannot be downplayed in education. As important as they are, their behaviour is so contagious that it can mar or help student learning. Teacher's behaviour is a function of the characteristics of the teacher, his environment and the task in which the teacher engages. Teacher's behaviour could be respect, relational, integrity, trust, enthusiasm among others. However, teacher's behaviour that hinders learning are - Resistance to change, absenteeism, unpreparedness for class, inability to meet student needs. Moreover, teacher cannot just decide to misbehave for no just cause, there must have been underline factors responsible for teacher's misbehaviour. Therefore, factors responsible for teacher's misbehaviour are – Poor incentive, wrong conception of teaching profession, economic regression, non-inclusive of students' diversity and culture, work related stress. The aforementioned thus, have implications on students learning. Teacher's misbehaviour does encourage fall in morality, low self- esteem, increase in examination malpractice and so on. It is therefore, expected of the teachers to develop an appropriate behaviour such as optimistic, emotional intelligence skill, commitment to work and building positive relationship. In addition, the government and the school owners should establish and disseminate a code of conduct for teachers that will guide their behaviour, monitor teachers physically (inspection) and through technological gadget (CCTV camera); provide support for teachers at all levels (financially, academically, morally) to avoid misbehaviour.

**KEY WORDS:** Teacher's Behaviour, Motivation.

### INTRODUCTION

One of the stakeholders that should not be underestimated in education is the teacher. A teacher serves as social agent that disseminate and model the norms of the society to the students. Practically, what a teacher does in the classroom situations with his or her students in terms of verbal and non - verbal behaviour is quite important for making the students achieve the desired learning experiences. Moreover, non – verbal behaviour such as gestures, demonstration, body movement and so on aid in realizing instructional objectives. Consequently, this non -verbal behaviour present the essentiality of teacher's behaviour. Teacher Behaviour is defined as "the behaviour or activities of persons as they go about doing whatever is required of teachers, particularly those activities which are concerned with guidance or direction of the learning of others" (Mangal and Mangal 2009, 369). Thus, this definition focuses on activities carried out by the teacher to fulfil his obligation. Teacher Behaviour is also defined as "a function of the characteristics of the teacher, his environment and the task in which the teacher engages" (McNergency, Robert and Carner 1981). Hence, this definition implies that teacher's behaviour is almost guided by his personality and the environment he finds himself. In the same vein, Motivation is that art of moving and guiding people toward the set goals, helping people take initiative, strive to improve and persevere in the face of setbacks and frustrations. (Goleman 1998, 376). In other words, a teacher is expected to encourage the students to achieve the learning set goals, take initiative and persevere in the face of difficulty. What a great responsibility committed to a teacher! This write up is therefore, out to describe the expected behaviour require of a teacher to motivate students learning.

### Teacher's Behaviour

The significant roles played by the teacher in every nation and education cannot be jeopardized, hence, the need for appropriate behaviour by the teacher to sanitize the teaching profession and to curb immoral activities by the teachers. Arthur cited by Ministry of Education and Employment in Malta asserts that, "The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires (2012, 29). Two things from this citation are exhibited from the

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teacher's behaviour, which are- demonstration and inspire. The two come from acting out right behaviour by the teacher. Therefore, teacher's behaviour is presented below.

1. **Respect:** Teachers are expected to uphold human dignity, promote equality, cognitive and emotional development. Malta document for Ministry of Education and Employment submits that teachers shall demonstrate respect for diversity, maintain fairness and promote equality irrespective of gender, race, religion, sexual orientation, appearance, age, language, different needs and abilities (2012, 20). This submission thus implies that respect is an important behaviour expected of the teachers in any nation to have for pupils or students, colleagues, parents and the management (Code of Professional Conduct for Teachers 2016, 6).
2. **Relational:** Teachers are to relate with the students appropriately for learning assimilation and retention. Also, teachers' relational attitude will foster understanding of learning that will propel change in behaviour of the students. It is thus of utmost importance for teachers to relate appropriately with other stakeholders in education (ibid).
3. **Care:** Teachers should have the interest of pupils or students at heart. This can be exhibited through empathy, positive influence and fair treatment of all (ibid).
4. **Integrity:** It is the ability of a teacher to be wholesome in his or her dealing with pupils or students, colleagues, school management and parents. Meaning that, a teacher is expected to be honest, responsible and committed to the task and students entrusted to. In addition, compliance to the procedures and policies of the body he represents (ibid).
5. **Trust:** This is an act of reliance or dependence on someone or something. It could also be something committed to somebody's care. So, trust entails openness, confidentiality (keeping secret that pertains to individual student, colleague, school and so on) and being fair in relating to all educational stakeholders. In other words, it is having regard for the safety and well-being of students; in addition, it is respecting the uniqueness and the diversity of the learning community they work (Ministry of Education and Employment 2012, 18).
6. **Enthusiasm:** Having keen interest in something or somebody. It is an act of exhibiting passion for a task or somebody. A teacher that exhibits enthusiasm about his task, shows higher quality instructional behaviour such as – monitoring students learning, providing autonomy support, increase student interest in learning (Stronge 2015, 5)
7. **Motivation:** It is giving incentive to people for a task well done or reason for doing something. Kunter et al cited by Stronge presents that "students who received instruction from an enthusiastic teacher reported greater intrinsic motivation regarding the learning material and experienced higher levels of vitality."(Ibid, 6). This implies that enthusiasm and motivation work hand in hand to enhance students learning in the classroom. They could be termed as contagious behaviour in the classroom.

## Teacher's Behaviours that Hinder Learning

Teachers play an integral role in boosting students learning and success in life. This is done irrespective of their background and the acquired qualifications but what matters most is their daily interaction with students as they discharge their duties. An international organization (Organization for Economic Cooperation and Development) carried out an assessment through its programme called PISA (-Programme for International Student Assessment) in 2018 by asking school principals about teacher's behaviour that can hinder students learning and create an unpleasant school climate; the principals response are the following – Teacher's resistance to change, Absenteeism, unpreparedness for classes and unmet needs of students (Organization for Economic, Cooperation and Development 2019, 112). In this vein, having observed students achievement, competence and their performance in different subjects, it is pathetic to discover that some students lose interest in learning possibly because of teacher's behavioural tantum. Hence, the response of the principals mentioned above will be briefly expounded.

1. **Teacher's Resistance to Change** – Teacher's resistance to change in school environment, methodology of teaching, use of instructional aids or technological gadgets could be hazardous to both the students and the school. For example, during the ravaging pandemic in 2020, most government schools' teachers cannot adjust to the change in teaching – learning because they are stereotyped and preferred to maintain the status quo. Even when the government decided to expose them to training on the use of technological gadgets, some were unable to catch up. In addition, when the policy enacted by the school owner is not in tandem with teacher's opinion, it engenders resistance from the teacher. As a result, it affects the teacher's input to teaching -learning which in turn affect student learning (Anderson 2011, 11).
2. **Teacher's Absenteeism** – Absenteeism is the act of malingering from duty or place of responsibility without good reason. When teachers miss work, the learning process is disrupted, particularly when the absences are unexpected and there is a lack of good substitute teachers. Apart from the fact that, it disrupts learning process, it also reduces student achievement in learning. Moreover, excessive teacher's absenteeism will bring a sizeable financial cost to education,

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increase the administrative burden on school management and encourage students to skip school too (Organization for Economic, Cooperation and Development 2019, 112).

3. Teacher's Unpreparedness for Classes – This is the inability of a teacher to get committed to his or her assignment. This may be as a result of involvement in other job or assignment which takes the time of the teacher. Moreover, this act of unpreparedness impedes the quality of education and information the students will get from the teacher especially if the learning is pedagogy not andragogy (ibid).
4. Teacher's Inability to meet students' needs – Students attend school to learn both formally and informally. Curriculum which is referred to all learning has both visible(written) and hidden(unwritten). Meeting the needs of students in terms of attending to their cognitive, psychological, social and physical wise can serve as motivation for learning. However, if these developmental needs are not met it may definitely impede students learning(ibid).
5. Teacher's lovelessness with Students – A clip was sent viral sometimes ago which has the story of a pupil whose parent left in the custody of a teacher in a preschool, the teacher accepted the child with enthusiasm but after the departure of the parent, she asked the child to clean the chairs which the child was reluctant doing and she started beating her. What an unfortunate situation for the child who desire to learn. Teacher's lovelessness behaviour can affect students learning if is not modified (Yildinm, Akan and Yalcin 2016, 5).
6. Preferential Treatment – Teacher's preferring successful students to the unsuccessful ones is a grievous behaviour that can hamper students learning and promote hatred from students to other teachers who do not display such behaviour(ibid).

### Factors Responsible for Teacher's Misbehaviour

- a. Wrong Conception of Teaching Profession – Some teachers view teaching as a job not as a vocation which they can derive fulfilment. Viewing teaching profession as a job is mainly to carry out a task and get paid. It is basically for profit. So, if other responsibilities attach to it will not generate profit, it does not worth doing ( Teacher's Behaviour )
- b. Non - Inclusive to Students Culture and Diversity – Some teachers resist inclusion into students culture and differences possibly because of ignorance, pride or something else. They lack the understanding that without students they cannot be opportune to teach or secure the teaching job. Students are crucial stakeholders in education that must be held in high esteem and helped (ibid).
- c. Poor Incentive - Teachers who cannot survive on their wages will become less motivated and have frequent absences. If it takes them two to three hours to get to school, they will have less time for preparation. As a result of poor incentive in terms of salary, no allowance or late payment of salary, some teachers hide under this to misbehave (Chron Contributor).
- d. Work -Related Stress – Teachers have several sources of stress in the work place. They include but not limited to increased class size, lack of control over work hours and methods (especially in the private schools), lack of professional recognition, inadequate salary and others can affect mood, behaviour and physical health of teachers if not well handled (ibid).
- e. Economic Regression – The diminishing in the nation economy could be responsible for teacher's misbehaviour because some could not live conveniently and comfortably on their salary except, they augment it by seeking extra pay job. Seeking for augmentation in salary will attract dividing commitment from the primary assignment to the extra pay job (ibid).

### Implications of Teacher's Misbehaviour on Students and School

Teacher – students relationship plays a prominent role in the development of competencies in students and advertising effective school climate because teachers serve as social agent that create a classroom setting which spur students to learning. Nevertheless, teacher's misbehaviour works against the above submission and it has the following implications on the school and the students.

1. Lower Achievement – Bruner cited by Oladele in the assumption of his theory on Cognitive development submits that intellectual development depends on good teacher – learner relationship (Oladele 1998, n.p). Thus, Bruner has it right because a loving, warm and enthusiastic teacher will attract diligent, committed and enthusiastic student to himself or herself and her subject or courses. On the other hand, a misbehaviour teacher will dampen the heart of students from learning and this will result in low achievement in the course or subject is handling (Koca 2016, 2). Besides, by implication it will engender low patronage for the school.
2. Low Self – Esteem – This is another germane issue that teacher's misbehaviour may cause the students; especially those that are less preferred or labeled as lazy, bad boys or girls (ibid).

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3. Relational Conflict with Peer – The behaviour of preferential treatment exhibited by the teacher will motivate relational conflict with peer. This will be possible in the sense that, some students will be labeled as 'teachers children' while some will be labeled as bad boys or girls, unsuccessful, tout and so on. In fact, some may be termed as 'unfortunate guys (ibid).
4. Unfriendly Classroom Environment – Naturally, an environment that will engender learning should be warm, friendly and enthusiastic. A favourable environment will develop the potentials in students. Therefore, if the classroom environment that includes teacher's behaviour is friendly and favourable, learning will be effective (ibid).
5. Increase in Examination Malpractice - Due to absenteeism of some teachers and misbehaviour, some students also become truant and they indulge in examination malpractice because there are no teachers to caution their truancy and teach them (Oghuvbu ).
6. A fall in Moral Standard – Teacher's misbehaviour engenders fall in moral standard of the society. Students lack moral because teachers that should be social agent lack moral as well (ibid).
7. Increase in Drop out – Students who cultivate truancy attitude as a result of the teacher's constant absenteeism may eventually drop out of school and jeopardize their destiny. It is so pathetic that, some drop out and they could not get their bearing till death (Quality in Education).

## Teacher's Behaviours that Encourage Learning

Teacher's behaviour is a key factor when it comes to quality education for all. Thus, teachers' behaviour has direct impact on their interaction with students, parents, colleagues and administrative staff. In fact, students desire to learn, attend school and their learning outcome have a larger percentage on teacher's behaviour. In light of this submission, the researcher is suggesting the following as acceptable behaviour of a teacher in any capacity of learning.

1. Understanding of self – The need to understand self helps fine-tune an excellent character. Every teacher is expected to know his or her personality make up such as introvert (Melancholy, Phlegmatic) or extrovert (Sanguine, Choleric) in order to interact well with others especially the students (Swain 2021, 1).
2. Develop Emotional Intelligence Skill – Emotional Intelligence is "the capacity to recognize one's own feeling and those of others, for motivating oneself, managing emotions well in oneself and in relationships" (Goleman 1998, 375). This implies that, ability to control one's emotion and that of others well is essential for appropriate behaviour in teaching – learning. However, Intelligent quotient without complementary role of Emotional intelligence is tantamount to a career jeopardy. In line with this, Goleman who propounded Emotional Intelligence quotient suggests five competencies which everyone relating with people must possess. They are – Self - awareness, self- regulation, motivation, empathy and social skill (ibid 376) .
3. Optimistic - A teacher stays positive and sees opportunities in students, even unsuccessful ones as the case may be. A teacher's enthusiasm is contagious to his or her students. He serves as encourager to the faint - hearted ones, failure, drop out and the less privileged (Optimistic).
4. Committed to Work – Nigerian pledge says, I pledge Nigeria my country, to be faithful, loyal and honest, to serve Nigeria with all my strength, ..., so help me God. This is a commitment from all citizens as much as they recite this pledge. In the same vein, teachers at all level should be devoted, loyal and faithful to the responsibility given to them. There should not be consistent absenteeism in their work that will impede students learning (Swain 2).
5. Reward Cooperation – It is imperative to make sure that classroom expectations are made clear and when these expectations are being met, praise the students regularly, adding that 'consistent praise and highlighting exemplary pupil behaviour or engagement helps boost pupil confidence as the teacher recognises those who are putting in the hard work, but also encouraging other pupils to be at the same level of engagement as their peers (ibid).
6. Build Positive Relationship – This will ensure that students are not spoken down to. Mutual respect is vital to a harmonious classroom. The teacher will be able to dispel behavioural issues more quickly if he or she can earn the respect from the outset. A teacher should aim to build positive relationships with the students quickly by doing the following - learn their names, show an interest in them and respond to them dutifully, understand the students - remember they are only human, they have good days and bad days and have a rational approach to classroom behaviour (ibid 3). In essence, a teacher should not focus so much on wrong behaviour but rather focus on the right behaviour to create positive environment that others can emulate.
7. Exhibit good Body Language – Non -verbal communication is a vital aspect of a successful classroom behaviour management. The method employed to convey a message is of significance than the message itself. Therefore, a teacher can use his body language to tell his or her students that he is approachable, he supports their learning and his presence does not pose any threat to them (Oladele n.p).

## Teacher's Basic Behaviour as Motivation for Student Learning

### RECOMMENDATIONS

Based on this write up the writer recommends the following

1. Government and the school owners should establish and disseminate a code of conduct for teachers that will guide their behaviour.
2. Teacher's behaviour should be monitored physically (inspection) and through technological gadget (CCTV camera).
3. Provide support for teachers at all levels (financially, academically, morally) to avoid misbehaviour.
4. Government and school owners should expose teachers to frequent training.
5. Enact discipline for erring teachers.
6. Employment process should be modified

### CONCLUSION

This paper addresses teacher's behaviour as motivation for student learning. The writer defines teacher behaviour, motivation, presents examples of teacher's inappropriate behaviour, factors responsible for it, implications of teacher's inappropriate behaviour on students and school, teacher's appropriate behaviour and recommendations. Teacher's code of conduct is thus encouraged to be established by the government and mode of employment should be modified for proper scrutiny of teachers because they play crucial role in education. Besides, teacher's behaviour and activities should be monitored.

### REFERENCES

- 1) Anderson, A.A. 2011. *Engaging Resistance: How Ordinary People Successfully Champion Change*. Palo Alto: Stanford University.
- 2) Chron Contributor. The Hazards of Being a Teacher. [www.chron.contributor](http://www.chron.contributor).
- 3) Teaching Council. 2016. *Code of Professional Conduct for Teachers: Standards of Teaching, Knowledge, Skills, Competence and Conduct*. 2<sup>nd</sup> ed. Ireland: Teaching Council.
- 4) Goleman, D. 1998. *Working with Emotional Intelligence: Social Competencies*. USA: Bantam Books.
- 5) Koca, F. 2016. "Motivation to Learn and Teacher-Student Relationship." *Journal of International Education and Leadership* 6, 2 : 2.
- 6) Mangal, S.K. and UMA Mangal. 2009. *Essentials of Education Technology: Teacher's Behaviour*. New Delhi: PHI Learning.
- 7) McNergency, F.Robert and A. Card Carner. 1981. *Teacher Development*: New York: Macmillan.
- 8) Ministry of Education and Employment. 2012. *Teachers Code of Ethics and Practice: The Six Key Principles*. Malta: Ministry of Education and Employment.
- 9) Oghuvbu, E.P. *Indiscipline among Teachers: Causes and Influence on School Administrator in Nigeria*. [www.files.eric.ed.gov](http://www.files.eric.ed.gov).
- 10) Oladele, J.O. 1998. *Fundamentals of Psychological Foundations of Education: Theory of Learning*. 4<sup>th</sup> ed. Lagos: John - Lad.
- 11) "Optimistic," [www.Johntalkonline](http://www.Johntalkonline).
- 12) Organization for Economic, Cooperation and Development. 2019. *Teacher Behaviour and Student Learning. PISA 2018 Results*, III, 112.
- 13) "Quality in Education," <https://www.norad.no/en/front/thematic-areas/education/education-quality>
- 14) Swain, R. 2021. "Managing Classroom." *Prospect* 1
- 15) Stronge, H. James. 2015. "Teacher Behaviour : Teacher Behaviour and Student Outcomes." *International Encyclopedia of the Social and Behavioural Sciences*. 2nd Edition. Accessed June 20, 2022. [http://teacher's behavior.pdf](http://teacher's%20behavior.pdf).
- 16) "Teacher Behaviour," [www.Teacher behavior Education IIEP Policy Toolbox 1652262631178\[1\]](http://www.Teacher%20behavior%20Education%20IIEP%20Policy%20Toolbox%201652262631178[1].pdf). pdf.
- 17) Yildinm, I, D. Akan and S. Yalcin. 2016. Teacher's Behaviour: Unwanted According to Student's Perceptions. *International Education Studies* 9, no.11: 5.



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## The Influence of African Traditional Spirituality on Christian Practices in Africa



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**ABSTRACT:** Human beings are religious by nature. In the discussion on African traditional spirituality, it provides the proofs on how Africans were and are notoriously religious even before the advent of Christianity. This article provides an overview of the influence of African traditional spirituality on Christian Practices in Africa. It is noted in this article that African traditional spirituality is a diverse and complex set of beliefs and practices that reflect the cultural and spiritual beliefs of the people of Africa. It encompasses a wide range of practices, including ancestor veneration, divination, healing practices, music and dance, and community building. Christianity was introduced to Africa in the 1<sup>st</sup> century AD, but it was not until the arrival of European colonizers in the 16<sup>th</sup> century that Christianity began to spread more widely throughout Africa. Today, Christianity is one of the most widespread religions in Africa, with over 541 million adherents on the continent. Christianity in Africa is diverse and complex, encompassing a range of denominations, including Catholicism, Protestantism, and various indigenous African churches. This article explores the ways in which African spirituality has influenced Christianity in Africa, and how this has shaped the religious and cultural landscape of the continent.

**KEY WORDS:** African, Traditions, Spirituality, Divination, Christianity

### INTRODUCTION

Christianity arrived in Africa with the arrival of European missionaries in the 15<sup>th</sup> century (Bediako, 1995). However, as Africans embraced the Christian faith, they also brought their traditional beliefs and practices with them (Awolalu & Dopamu, 1979). This has led to the development of a unique form of Christianity that is distinctly African, influenced by African spirituality (Awolalu & Dopamu, 1979). African spirituality is a diverse set of beliefs and practices that have been passed down through generations (Olupona, 2000). It is deeply rooted in the connection between the spiritual and physical worlds and the idea that everything is interconnected (Olupona, 2000). African spirituality is not limited to any one religion and is found across the continent in various forms (Awolalu & Dopamu, 1979). The exploratory question here is to see whether the religion of the Africans can stand independent of Christianity or depends on foreign religion for its sustenance.

### METHODS

The study has undergone descriptive methodology on understanding the concepts, the relations, the connections between concepts and the cause and effects. It is within the study where the Spirituality of the Africans dominate the life of its people and later interfeared by the coming of Christian religion into Africa and vivid examples are given.

### The origin of African Independent Churches

During the colonial period, those dissatisfied with the socio- economic, political and religious structure of Europeans decided to institute their own churches where they were free to worship and teach without missionary interference. The religious changes introduced by Europeans included the establishment of mission stations. European missionaries came in a divided manner whereby each Christian missionary group maintained strong ties with their mother church organizations at home that gave them support financially and materially (Nyahela Caxton, 2015).

## **The Influence of African Traditional Spirituality on Christian Practices in Africa**

A study of African Traditional Religion shows that people in African societies and cultures knew God even before Christianity was introduced to Africa by missionaries from the west. It is clear that God has been at work among the Africans ever since they came to receive Christianity, a fact that suggests that African Religion had been a preparation for the Gospel of Jesus Christ.

Some scholars who have done careful research into African Traditional Religion such as Mbiti, Walls, Bediako, Shoter, just to mention a few, have viewed African Religion as preparation for the Christian Gospel. They argue that just as Jewish religion was a preparation for Israelites to receive the Gospel of Jesus Christ so is African Religion.

Mbiti (In et al. 2012) This article interrogates African Spirituality and its influence on Christianity in Africa.

### **African Traditional Spirituality**

African spirituality refers to the spiritual beliefs and practices of the people of Africa (Olupona, 2000). It encompasses a wide range of beliefs and practices, including ancestor veneration, divination, healing practices, music and dance, and community building (Olupona, 2000). African spirituality is diverse and complex, and it varies from region to region and from tribe to tribe.

Ancestor veneration is a central component of African traditional spirituality (Magesa, 1998; Mbiti, 1970). In Africa, ancestors are believed to be able to influence the lives of their living descendants, and they are often invoked for guidance and protection (Mbiti, 1970). This stems from the fact that the African families consist of both, the living and the dead (Mbiti, 1970). One of the dead group members of the family include the ancestors (Magesa, 1998). Ancestors in Africa are treated with high respect as the Africans believe in the continuity of life even after death. This is in line with what Awolalu and Dopamu (1979) admits that ancestor veneration is an integral part of African spirituality because it reflects the African belief in the continuity of life beyond death.

Divination is another important aspect of African spirituality. Divination is a method of communicating with the spiritual world and seeking guidance and advice (Sobiecki, 2002). There are many forms of divination in African spirituality, including the use of bones, shells, and other objects (Parrinder 1961). According to Parrinder (1961) divination is an important part of African spirituality because it reflects the African belief in the interconnectedness of all things.

Healing practices are also a key aspect of African spirituality. Healing practices include the use of herbal remedies, prayer, and other forms of spiritual healing. According to Mbiti (1991), healing is an integral part of African spirituality because it reflects the African belief in the interconnectedness of the physical and spiritual worlds.

Music and dance are also important components of African spirituality. Music and dance are used as a means of expressing joy, gratitude, and faith. According to Nyamiti (2000) music and dance are an integral part of African spirituality because they reflect the African belief in the interconnectedness of all things.

Community building is another important aspect of African spirituality. African spirituality emphasizes the importance of building relationships and communities. According to Magesa (1997), community building is an integral part of African spirituality because it reflects the African belief in the interconnectedness of all things and the importance of social harmony.

African spirituality is a diverse and complex set of beliefs and practices that reflect the cultural and spiritual beliefs of the people of Africa. It encompasses a wide range of practices, including ancestor veneration, divination, healing practices, music and dance, and community building. African spirituality continues to have a significant influence on the spiritual beliefs and practices of African people today.

### **Christianity in Africa**

Christianity was first introduced to Africa in the 1<sup>st</sup> century AD, when the apostle Mark is said to have visited Egypt and founded the Coptic Church. However, it was not until the arrival of European colonizers in the 16<sup>th</sup> century that Christianity began to spread more widely throughout Africa.

Today, Christianity is one of the most widespread religions in Africa, with an estimated 541 million adherents on the continent (Pew Research Center, 2015). Christianity in Africa is diverse and complex, encompassing a range of denominations, including Catholicism, Protestantism, and various indigenous African churches.

Catholicism has a long history in Africa, dating back to the arrival of Portuguese explorers in the 15<sup>th</sup> century. Today, there are over 190 million Catholics in Africa, making it the largest Catholic population outside of the Americas (Pew Research Center, 2015). Catholicism in Africa has been shaped by local cultural and religious traditions, with African Catholicism often incorporating elements of African spirituality into its practices.

Protestantism was introduced to Africa in the 19<sup>th</sup> century by European missionaries, and has since grown to become a major religious force on the continent. Today, there are over 541 million Protestants in Africa, making it the largest Protestant population in the world (Pew Research Center, 2015). Protestantism in Africa is diverse, encompassing a range of denominations, including Anglicanism, Methodism, and Pentecostalism.



## **The Influence of African Traditional Spirituality on Christian Practices in Africa**

Indigenous African churches are another important aspect of Christianity in Africa. These churches often combine elements of Christianity with traditional African religious beliefs and practices. According to Kalu (2006), indigenous African churches represent a form of resistance to European colonialism and the imposition of Western Christianity on African societies.

The growth of Christianity in Africa has had a significant impact on the continent. Christianity has been credited with promoting education, healthcare, and social justice in many African communities (Sanneh, 1996). However, Christianity in Africa has also been criticized for its role in promoting colonialism and for its failure to adequately address the social, economic, and political challenges facing the continent (Kalu, 2008).

### **Religion and Spirituality**

Religion and spirituality are strongly based on a personal quest for understanding of questions about life and meaning. Most definitions of spirituality encompass the meaning of life, the integration of ultimate values and connectedness with the transcendent. Spirituality involves centrally important life orienting beliefs, values and practices that may be expressed in religious and non-religious ways. Spirituality may be considered private or it might be shared with others.

(Mabvurira 2016) argues that the definition of spirituality differs from person to person and across ethnic, gender, class, generational and cultural lines. He further argues that not all people express their spirituality through religion. (Mabvurira 2016) posits that religion and spirituality overlap in that both are concerned with the search for meaning. He further mentions that spirituality is expressed in religious forms in many people. He, however, notes that spirituality is broader than religion.

### **The Influence of African Spirituality on Christianity**

The arrival of Christianity in Africa did not mean the end of African spirituality. Instead, it created a fusion of the two traditions, resulting in a unique form of Christianity that is distinctively African. Here are some ways in which African spirituality has influenced Christianity in Africa.

#### **1. The Role of Ancestors**

In many African societies, ancestors play a vital role in daily life. They are consulted for guidance and protection, and their wisdom is valued. When Africans embraced Christianity, they brought this belief in ancestors with them. As a result, many African Christians pray to their ancestors for help and guidance, alongside praying to God. This has led to the development of a unique form of Christian spirituality that incorporates ancestor veneration (Magesa, 1997).

According to Magesa (1997), ancestor veneration is an integral part of African traditional religion and has been incorporated into African Christianity. The role of ancestors in African Christian spirituality has been acknowledged by many theologians, including Kwame Bediako, who argued that the veneration of ancestors is not incompatible with Christian beliefs (Bediako, 1995).

#### **2. Worship**

African spirituality is often expressed through music, dance, and other forms of artistic expression. As a result, many African Christians incorporate these elements into their worship services. This can include drumming, dancing, and singing in African languages. In some cases, Christian hymns are set to traditional African melodies, creating a blend of European and African music styles (Asamoah-Gyadu, 2005).

According to Asamoah-Gyadu (2005), music and dance are important parts of African Christian worship because they allow worshippers to express their faith in a way that is culturally relevant to them. This has led to the development of a unique form of Christian worship that incorporates African cultural expressions.

#### **3. Theology**

African spirituality has also had an impact on Christian theology in Africa. One of the key areas in which this is evident is in the way Africans understand the concept of sin. In many African societies, sin is not just a personal failing but a violation of the social order. As a result, African Christians often see sin as something that not only affects the individual but also the wider community. This has led to a greater emphasis on social justice and community-building in African Christian theology (Nyamiti, 2000).

According to Nyamiti (2000), African Christian theology is characterized by a concern for the well-being of the community, including issues such as poverty, oppression, and injustice. This reflects the influence of African spirituality, which places a strong emphasis on social harmony and community-building.

#### **4. Social Structures**

African spirituality places a strong emphasis on community and social harmony. As a result, African Christians often have a different approach to social structures such as the family and the church. In many African societies, the family is seen as the foundation of society, and this belief has been carried over into African Christianity.

In African Christian communities, the family is often seen as an extended unit that includes not only immediate family members but also ancestors and the wider community. This has led to a different approach to family ministry and pastoral care in African Christianity, which often emphasizes the importance of the family unit and seeks to support and strengthen it (Olupona, 2000).

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Similarly, the church is seen as a community rather than an institution in African Christianity. African Christians often prioritize the building of relationships and community over strict adherence to organizational structures. This reflects the influence of African spirituality, which emphasizes the interconnectedness of all things and the importance of community and social harmony (Asamoah-Gyadu, 2005).

### **5. Healing and Deliverance**

African spirituality places a strong emphasis on healing and deliverance. This is reflected in African Christian practices such as prayer for healing and deliverance, which have become an integral part of African Christian spirituality. In many African Christian communities, prayer for healing and deliverance is seen as a means of dealing with spiritual, physical, and emotional issues (Mbiti, 1991).

According to Mbiti (1991), healing and deliverance are an important part of African Christian spirituality because they reflect the African belief in the interconnectedness of the physical and spiritual worlds. African Christians often seek healing and deliverance from God and also through traditional African methods such as herbal remedies and divination.

Man and other animals have used herbal remedies and medicine from time immemorial (Mabvurira 2016). African traditional medicine is the oldest and perhaps the most assorted of all therapeutic systems. Sixty percent of the world's population uses herbal medicine for treating their sickness and up to 80% of people living in Africa depend on TM for some aspects of their health care (Mabvurira 2016)

Traditional medical practitioners include herbalists, traditional healers, diviners and religious healers. Most of these practitioners believe that the ability to diagnose illness is bestowed by God or the practitioner's ancestors on them. Traditional healers have an edge over biomedical doctors in that their healing involves medicine, spiritual, ritual, good luck charms and divination (Mabvurira 2016)

For Zimbabweans for example, the elders and ancestors are key to the continuing access and inheritance of traditional medical knowledge through special dreaming (kurotswa) and ritual divination (kusvikirwa) where this knowledge is revealed as a gift. Many Zimbabweans who are unable to afford expensive Western medicine, have turned to indigenous healing practices (Mabvurira 2016)

### **Traditional Healing Practices**

African traditional healing skills are acquired through apprenticeship to an older healer, experience of certain techniques, conditions or by ancestral calling. The calling may come in the form of dreams or illnesses. A targeted person may become ill, consult a traditional healer where they are then told about the special calling. The gift of healing is bestowed by ancestors. Here the bestowing is different from that of prophetic where it may happen regardless of man at sleep.

Spirit mediums play an important part in the area of health. They are both religious leaders as well as health specialists. This strong connection between healing-land and religion is very broad, and it is part of the African theory of illness. This theory attempts to explain illness, relations between ancestors, God and the universe (Mabvurira 2016). Traditional healers are believed to have the esoteric knowledge about things beyond the comprehension of ordinary human beings.

### **Caring for the Sick in African Communities**

Communities shape people's interpretations and responses to pain and suffering. In traditional African communities, a person relies on the community when faced with insurmountable problems such as illness. In the event of an illness, the community, being one with the individual has the responsibility of taking care of the sick individual and getting rid of the sickness. (Mabvurira 2016), states that the idea of doing well to other people as enshrined in the African kernel of ubuntu provides a helping hand in the HIV and AIDS prevention and care.

Caring entails giving love and providing for the needs of the person who is in need. Care can be physical, emotional, financial, psychological or any other form. Africans recognise the vitality of human life and any action which increases human life is promoted.

In African communities, the family plays an important role during one's illness. Among many African communities, it is assumed that an ill person deserves to be treated as a child and therefore, deserves protection. Importance to note is the fact that in African communities, accomplishments of individuals are attributed to the whole family. This also applies to shame and misfortune.

### **Belief on myths**

Myths are stories concerning events, people's animals, places and they may be based on false perceptions or true historical occurrences. Myths deal with disturbing and difficult questions like the origins of things like the universe, life, death, communities, religions and nations. The authenticity of some myths may be scrutinized and proven by the scientific discipline of archaeology. This study is not concerned with the truthfulness or falsity of myths but acknowledges the significant roles that myths play to

## The Influence of African Traditional Spirituality on Christian Practices in Africa

those who own them. For example, it provides them with a world view concerning the nature and purpose of existence, gives answers to difficult questions concerning the past, present and future, justifies the mode of existence and makes life more worthy and meaningful experience, helps humans to cope with challenges in life and to have a hope for the future. Communities which tend to evolve puritanical, domineering, warrior or superior traits may become dangerous to weaker groups. They may cause the extinction of weaker groups through improvisation of unfair practices such as slavery, dispossession, discrimination, insecurity or warfare. Myths are capable of causing both merits and demerits to humans in a diversity of ways.

There are numerous stories which are upheld by the African Israel Church Nineveh members. Among them are the Biblical myths of creation, the story of fall of humanity from God's grace, Abrahamic stories, the exodus, Davidic stories and the New Testament stories of the virgin birth, miracles and the resurrection of Jesus (Nyahela Caxton 2015)

### CONCLUSION

African spirituality has had a significant impact on Christianity in Africa. It has led to the development of a unique form of Christianity that is distinctly African and reflects the cultural and spiritual beliefs of African people. African Christianity incorporates elements of African spirituality such as ancestor veneration, music and dance, a concern for social justice, a focus on community-building, and prayer for healing and deliverance.

While the influence of African spirituality on Christianity in Africa has been positive in many ways, it has also led to some challenges. For example, there is a risk of syncretism, where traditional African beliefs are mixed with Christian beliefs in a way that dilutes the central tenets of Christianity. Additionally, some elements of African spirituality such as divination and ancestor worship have been condemned by some Christian denominations.

Overall, the influence of African spirituality on Christianity in Africa has resulted in a rich and diverse form of Christian spirituality that reflects the cultural and spiritual beliefs of African people. As Christianity continues to grow and evolve in Africa, it will be important to maintain a balance between incorporating elements of African spirituality while remaining true to the central tenets of Christianity.

### REFERENCES

- 1) Adeyemo, T. (Ed.). (2006). *Africa Bible commentary*. Zondervan.
- 2) Asamoah-Gyadu, J. K. (2005). *African Christianity: An African Story*. Pretoria: University of Pretoria.
- 3) Awolalu, J. O., & Dopamu, P. A. (1979). *West African Traditional Religion*. Ibadan: Onibonoje Press & Book Industries (Nig.) Ltd.
- 4) Bediako, K. (1995). *Christianity in Africa: The Renewal of a Non-Western Religion*. Edinburgh: Edinburgh University Press.
- 5) In, Conversion, Missionary Christianity, Critical Assessment, O. F. Methods, Their Impact, O. N. Haya, and Christian Life. 2012. "CONVERSION IN MISSIONARY CHRISTIANITY , NORTHWEST TANZANIA : A CRITICAL ASSESSMENT OF METHODS AND THEIR IMPACT ON HAYA CHRISTIAN LIFE By Josephat Alphonse Rweyemamu Dissertation Presented for the Degree of Doctor of Philosophy ( PhD ) in the Faculty of Th." (December).
- 6) Kalu, O. U. (2006). *African Christianity: An African story*. Wm. B. Eerdmans Publishing.
- 7) Kalu, O. U. (2008). The impact of Christianity on sub-Saharan Africa. *Current History*, 107(709), 299-305.
- 8) Mabvurira, et. a. 2016. "Influence of African Traditional Religion and Spirituality in Understanding Chronic Illnesses and Its Implications for Social Work Practice: A Case of Chiweshe Communal Lands in Zimbabwe." 1–338.
- 9) Magesa, L. (1997). *African Religion: The Moral Traditions of Abundant Life*. Maryknoll, NY: Orbis Books.
- 10) Mbiti, J. S. (1991). *African Religions and Philosophy* (2nd ed.). Portsmouth, NH: Heinemann.
- 11) Nyahela Caxton. 2015. "The Influence of Luyia Traditional Religious Rituals on Christianity: A Case Study of African Israel Church Nineveh in Vihiga County, Kenya By Nyahela Caxton a Thesis Submitted in Fulfilment of the Requirements for the Award of the Degree of Doctor of Phi." 1–383.
- 12) Nyamiti, C. (2000). *African Christian Theology: Adaptation or Incarnation?* Nairobi: Paulines Publications Africa.
- 13) Olupona, J. K. (2000). African Traditional Religion: A Definition. In J. K. Olupona (Ed.), *African Traditional Religions in Contemporary Society* (pp. 3)
- 14) Pew Research Center. (2015). *The future of world religions: Population growth projections, 2010-2050*. Pew Research Center.
- 15) Sanneh, L. (1996). *West African Christianity: The religious impact*. Orbis Books.
- 17) Sobiecki, J. F (2002) Preliminary inventory of plants used for psychoactive purposes in healing practices in Africa traditions. <https://doi.org/10.1080/00359190209520523>

## Development of Authentic Assessment Instruments of Football Passing, Dribbling, and Shooting Skills in Physical Education, Sports and Health Learning in Senior High School



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**ABSTRACT:** This study aims at developing an instrument for authentic assessment of physical education, sports, and health learning outcomes on the basic movement skills of football games for senior high school students because the assessment of learning outcomes is very important in learning activities. The research method uses Research and Development (R&D) using a 4-D research model consisting of four steps, namely: (1) Define, defining by conducting a preliminary study of product needs, (2) Design, designing by compiling assessment rubrics adjusted to the curriculum, KI (core competencies) / KD (basic competencies), and materials, (3) Development, developing by validating with CVR (Content Validity Ratio) and reliability using Alpha Cronbach and ICC (Intraclass Correlation Coefficients), (4) Dissemination, product distribution for practitioner use. The subjects in this study were students of class XI of SMA Muhammadiyah Ponjong and SMAN 1 Depok, Special Region of Yogyakarta. The result of this study is the development of an authentic assessment instrument product of the basic motion of the football game. The results of the proof of validity using CVR (Content Validity Ratio) showed the results of 1, and the proof of reliability using Alpha Cronbach and ICC (Intraclass Correlation Coefficients) obtained the results of product trials at SMA Muhammadiyah Ponjong of  $r$  alpha cronbach = 0.770 and  $r$  ICC = 0.751. The large-scale test of the product was carried out at SMAN 1 Depok with the result of  $r$  alpha cronbach = 0.914. Therefore, the results of the proof of validity and reliability show that the product development of authentic assessment instruments for Physical Education, Sports and Health learning outcomes in basic football movement skills has a high level of reliability so that it can be used as an authentic assessment instrument.

**KEYWORDS:** development, assessment instrument, learning outcomes, football

### I. INTRODUCTION

Learning process is a process in which there are interaction activities between teachers and students, and there is reciprocal communication that takes place in educative situations to achieve a learning goal. The online learning system is a learning system without face-to-face meetings between teachers and students, but online using the internet network (Asmuni, 2020). Educators must also maximize their teaching time so that it requires learning models such as e-learning and blended learning to meet the loss of teaching time due to other activities that must be done by the teacher besides teaching (Huda et al., 2019).

Invasion Game is to master or defend the object of the game so that it is always on the team by passing or dribbling, and trying to get the object of the game from the opposing team by blocking, obstructing or seizing it to prevent or make a goal. Several studies have shown benefits in addition to developing movement skills from invasive games such as game knowledge, decision making and technical skills such as football, basketball, or handball in school learning (Fernando and Jose: 2015). The big ball invasion game is widely favoured by the public because it is easy and done by many people so it makes a person happy, and it is fun to do, one of which is football.

According to Yiannis (2013:1), "football is the most popular sport the world with millions of people involved in amateur and professional levels". Syukur & Soniawan (2015) asserts football is a game that requires a lot of energy, intelligence on the field spurs enthusiasm, while providing joy through togetherness in a team. Football is a sport played in teams of eleven people in a squad. Rollin (2019) states football is a sport played by two teams of 11 (eleven) players each. Football games have the goal of scoring as many goals as possible against the opponent's goal. To play football, the field, ball and goal are needed as a means of playing. Players use any part of their body except their hands and arms, try to aim the ball at the opposing team's goal and only

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the goalkeeper is allowed to touch the ball using his hands and can only do so inside the penalty area surrounding the goal. The team that scores the goal wins.

In order to be able to play football, players must master football techniques because without mastering the basic techniques of playing football well, a person cannot play according to football rules. The basic techniques in playing football are dribbling techniques, heading techniques, gastric kick techniques, passing techniques, blocking techniques, goalkeeping techniques, tackling techniques and body charge techniques Hidayat, (2017:30). Football always offers beauty in every corner both in terms of training and matches, football must also be required to have good technical, physical, mental and strategic skills Festiawan (2019). According to Suprayitno & Damanik (2016), in optimizing basic football technique skills in addition to mastering techniques, students must also have independence, parental support, and good achievement motivation. Because whatever the existence of student independence, parental support and achievement motivation still have a very close influence on basic football technical skills.

To improve the ability to use basic movements, a routine exercise and evaluation is needed. Evaluation is carried out to determine weaknesses or mistakes made by students. Appropriate and accurate evaluation of data is needed, to obtain the data, an assessment instrument is needed. The goal is to find out/explore the skills information obtained from students. Ridwan (2014:201) assessment is an effort to collect data which is then processed for policy making of an educational program. In teaching and learning activities, educators/teachers conduct assessments by collecting facts and student learning documents to improve learning planning.

Assessment is defined by Yusuf (2015:14) as a systematic and continuous process or activity to collect information about the process and learning outcomes of students in order to make decisions based on certain criteria and considerations. Authentic assessment is an assessment approach that requires students to display attitudes, use knowledge, and skills obtained from learning in real situations Hamid, (2015:6). Authentic assessment is an appropriate instrument to assess students in carrying out physical activities because it is in accordance with their abilities in actual playing conditions.

Authentic assessment is used to assess or measure a person's ability in the context of a real match or sport not the learner's ability to display separate skills. In accordance with the Implementation of Educational Assessment, the educational assessment standard according to (Regulation of the Minister of Education and Culture number 23 of 2016) is a standard regarding the scope, objectives, benefits, principles, mechanisms, procedures, and methods of assessing student learning outcomes used as a basis for assessing student learning outcomes in primary and secondary education.

Physical education or often called Physical Education, Sports and Health is a discipline that is mostly assessed as skills. In accordance with (Regulation of the minister of education and culture number 23 of 2016), skills assessment is an activity carried out to measure the ability of students by applying knowledge in performing certain tasks. So far, Physical Education, Sports and Health teachers only assess a person's skills from the success of performing a skill using a test tool that only assesses his level of ability in mastering a skill, for example, David Lee's football skill test. The test only measures the skill level of students in mastering basic techniques. However, in practice after the teacher conducts an assessment, it usually stops there without conducting further assessments related to behavior in activities when playing real football.

On the basis of facts and some opinions, in the background of the problem. Researchers are interested in compiling a study whose main focus is an effort to assess the level of effectiveness of the use of basic football moves in students of SMAN 1 DEPOK through performance-based assessment. Therefore, the researcher would like to review the research entitled "Development of Authentic Assessment Instruments for Football Passing, Dribbling, and Shooting Skills in Physical Education, Sports, and Health Learning in Senior High School".

## **II. METHOD**

The research used in this paper is R&D research (Research and Development). Amile and Reesnes (2015:297) states that Research and Development (R&D) is a research method used to produce certain products, and test the effectiveness of those products. This study aims to produce a product that is a needs analysis and to test the effectiveness of the product so that it can be useful for teachers who teach Physical Education, Sports, and Health, especially for football big game material. This research resulted in an Authentic Assessment Instrument on the Application of Basic Motion. Sugiyono (2016: 407) enhances Research and Development (R&D) is a research method used to produce certain products and test the effectiveness of these products in learning Physical Education, Sports, and Health in Class XI. The trial subjects were conducted to all students of SMAN 1 Depok in the 2021/2022 academic year of class XI with a total of 100 people.

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## III. DISCUSSION

The design used in this study is a 4-D (Four-D) development model. The use of the 4-D development model is to make it easier for researchers to conduct research systematically because it is carried out sequentially without passing each stage. 4-D is a development model with four development steps, namely the 4-D model consisting of Define, Design, Development, and Disseminate. This 4-D model was chosen because it aims to produce products in the form of authentic assessment instruments for Physical Education, Sports, and Health learning outcomes on basic movement skills of football games.

### 1. Define

The initial stage in this development is Define, which is to conduct a definition or initial study for high school Physical Education, Sports, and Health teachers, especially in Kab. Gunungkidul about the teacher's understanding of authentic assessment and the needs of the instrument so that it is in accordance with the analysis of product needs and in accordance with the target.

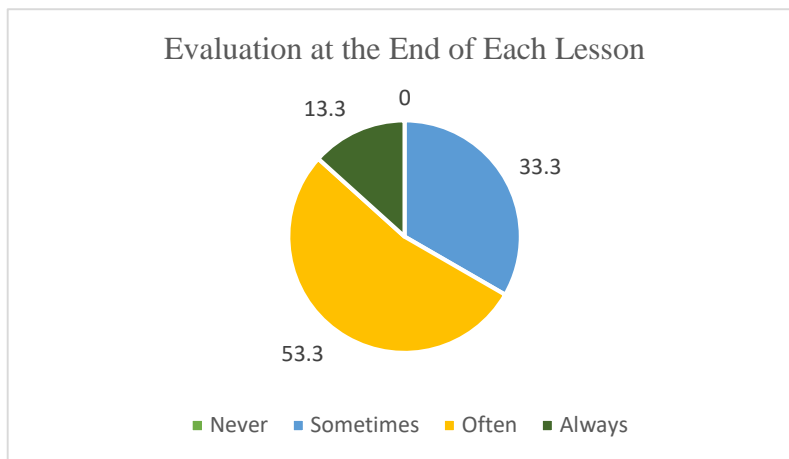


Figure 1. Evaluation at the End of Each Lesson

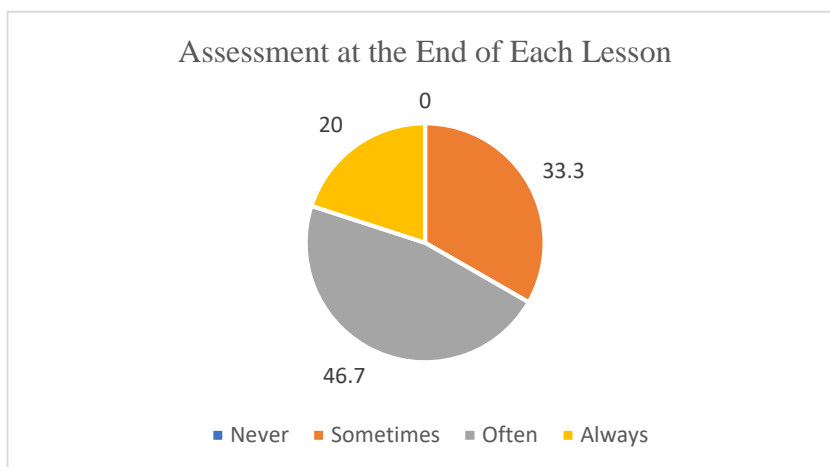
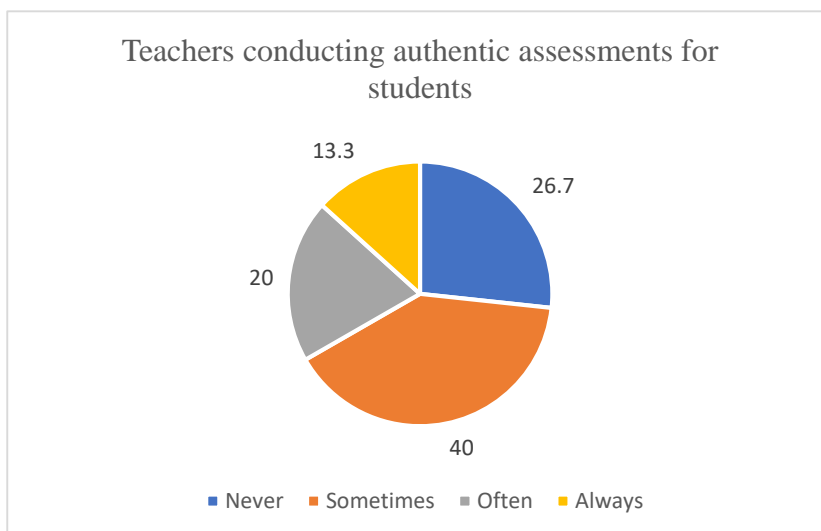


Figure 2 . Assessment at the End of Each Lesson

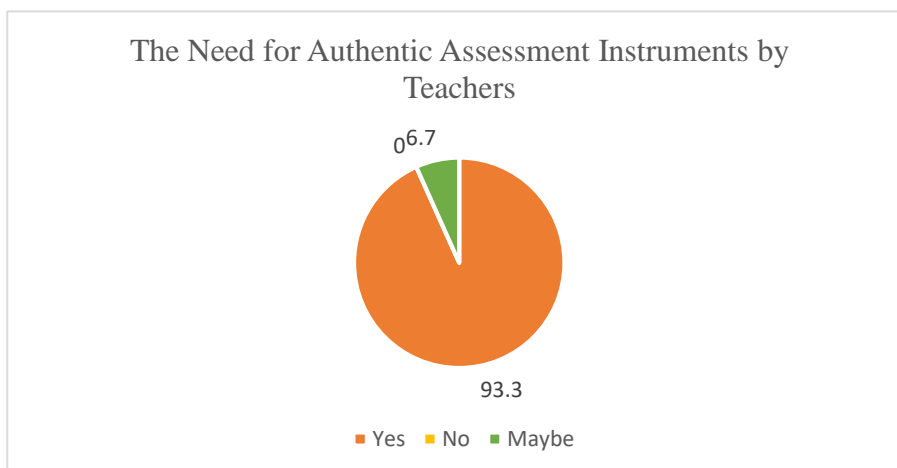
From the following data, almost all teachers conduct assessments and evaluations to students at the end of each lesson. Thus, it can be concluded that the teacher needs data or information to assess the ability of students in the basic movement skills of the football game.

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**Figure 3. Authentic Assessment of Learners by Teachers**

From the following diagram, it can be concluded that 20% of teachers have never conducted authentic assessments. Therefore, it is necessary to provide education and knowledge to teachers about authentic assessment so that the product can be used in accordance with its function and teachers who use the product have no difficulty in using the product.



**Figure 4. The Need for Authentic Assessment Instruments by Teachers**

The initial study of the product needs to produce information according to 15 Physical Education, Sports and Health teachers 93.3% requires an authentic assessment instrument of the basic movement skills of the football game in Physical Education, Sports and Health learning so that the product can be developed in accordance with the needs of Physical Education, Sports and Health teachers about an authentic assessment instrument.

### 2. Design

The grids/components in the instrument are arranged based on KI (core competencies) /KD (basic competencies) and RPP (lesson plan) delivered to students so that they are in accordance with learning materials, competencies, indicators, and sub-indicators. By starting with competencies to be measured such as top service, bottom service, etc. Followed by the indicators include initial attitude, implementation, and final attitude. And the sub-indicator contains a description of motion in accordance with the rules of motion and expert theory.

The next development step is the creation of assessment rubrics, making adjustments to instrument items that have been adjusted to the criteria, which are adjusted to the abilities and knowledge of students. In addition, the manufacture of instruments is carried out with the consideration of various material experts in accordance with their fields, namely football games. So that, it can create a quality instrument that can be used in accordance with its function.

### 3. Development

The instrument that has been made is then validated by a material expert and the evaluation of the football game is in accordance with the steps of the research method so that the need for validation by the expert to determine the feasibility of an

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instrument is used to assess. The validated instrument sheet is then duplicated according to the number of students to be tested with easy assessment by the teacher.

### 4. Disseminate

The finished product is then packaged in book form. In the book, there are guidelines for using and how to use the instrument. Books are designed in such a way that they are easy to carry and interesting to use. The book is then distributed in the form of a soft file or hard file so that it is easy to use and easy to disseminate.

## IV. CONCLUSION

Based on the data analysis and discussion, the conclusions of the development research conducted are as follows:

1. Physical Education, Sports and Health Teachers in SMA Muhammadiyah Ponjong Gunungkidul District and SMAN 1 Depok Sleman District understand the authentic assessment model of Physical Education, Sports and Health learning outcomes on the basic movement skills of the football game.
2. Produce authentic assessment instrument products for learning football motion skills in Physical Education, Sports and Health learning that are valid and reliable because the product has proven validity and reliability by obtaining a very good score and is feasible for an assessment instrument.
3. Produce authentic assessment instrument products for Physical Education, Sports and Health learning outcomes to measure the psychomotor ability of basic movement skills of football games in Physical Education, Sports and Health learning.
4. Produce an authentic assessment instrument product that is complete, qualified, and easy to use in the assessment of Physical Education, Sports and Health learning outcomes on basic motion skills of playing football.
5. Produce a complete and validated authentic assessment rubric structure.

## REFERENCES

- 1) Asmuni, A. (2020). Problematika pembelajaran daring di masa pandemi covid-19 dan solusi pemecahannya. *Jurnal paedagogy*, 7(4), 281-288.
- 2) Festiawan, R., Nurcahyo, P. J., & Pamungkas, H. J. (2019). Pengaruh latihan small sided games terhadap kemampuan long pass pada peserta ekstrakurikuler sepakbola. *Media ilmu keolahragaan Indonesia*, 9(1), 18-22.
- 3) Hidayat, A., & Dewi, B. S. (2017). Analysis of The Diversity Species Water Birds in Divisi I and Divisi II Gunung Madu Plantations Inc. Lampung Tengah Regency Lampung Province. *Sylva Lestari*, 5(3), 30-38.
- 4) Maseleno, A., Huda, M., Jasmi, K. A., Basiron, B., Mustari, I., Don, A. G., & bin Ahmad, R. (2019). Hau-Kashyap approach for student's level of expertise. *Egyptian Informatics Journal*, 20(1), 27-32.
- 5) Munoz-Ortega, F. J., San Jose Martinez, F., & Caniego Monreal, F. J. (2015). Volume, surface, connectivity and size distribution of soil pore space in CT images: comparison of samples at different depths from nearby natural and tillage areas. *Pure and Applied Geophysics*, 172, 167-179.
- 6) Nawal, O., Elnasri, H. A., Hamid, T. A., & Almofti, Y. A. (2015). Haematological parameters of local, foreign and crossbred goats in Sudan. *Ann Bio Res*, 6, 23-27.
- 7) Rollin J., 2019. Artikel; Overview Of Soccer. Dalam <https://www.britannica.com/sports/football-soccer> diakses pada 25 April 2022
- 8) Rosencrantz, R. A., Wu, Y., Sonke, P. Y., & Yusuf, Y. (2015). Giant hepatocellular adenoma in a previously obese thirteen-year-old boy. *Annals of Hepatology*, 14(4), 559-563.
- 9) Sani, Ridwan Abdullah. (2014). Pembelajaran Saintifik Untuk Implementasi Kurikulum 2013. Jakarta: PT Bumi Aksara
- 10) Suprayitno, & Damanik, S. A. (2016). Keterampilan Teknik Dasar Sepakbola Dapat Dipengaruhi oleh Kemandirian Siswa, Dukungan Orang Tua. *Jurnal Ilmu Keolahragaan*, 15(1), 1-10.
- 11) Syukur, A., & Soniawan, V. 2015. The Effects of Training Methods and Achievement Motivation Toward of Football Passing Skills. *Jipes-Journal of Indonesian Physical Education and Sport*, 1(2), 73-84. Buku Ajaran Sepakbola. Padang : FIK UNP.



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## Correlation Study between Speed, Agility, Leg Power, and Eye-Foot Coordination on the Dribbling Ability of Bali United Football Players in 2021



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**ABSTRACT:** This study aims to determine: (1) The relationship between speed and dribbling ability. (2) The relationship between agility and dribbling ability. (3) The relationship between limb power and dribbling ability. (4) The relationship between eye-foot coordination with dribbling ability. (5) The relationship between speed, agility, leg power, and eye-foot coordination on the dribbling ability of Bali United football players in 2021. This type of research is correlational. The population in this study were 32 Bali United 2021 football players. The sampling technique used was total sampling. The speed instrument is measured by the 50 meter running test with units of seconds, agility is measured using the Illinois Agility Test with units of seconds, leg power is measured using the vertical jump test with units of centimeters, and dribbling ability is measured by the Short Dribbling Test test in units of seconds. The data analysis technique uses multiple regression. The results showed that: (1) There is a significant relationship between speed and dribbling ability. (2) There is a significant relationship between agility and dribbling ability. (3) There is a significant relationship between limb power and dribbling ability. (4) There is a significant relationship between eye-foot coordination and dribbling ability. (5) There is a significant relationship between speed, agility, leg power, and eye-foot coordination on the dribbling ability of Bali United football players in 2021.

**KEYWORDS:** speed, agility, leg power, eye-foot coordination, dribbling ability

### INTRODUCTION

Football is a big ball game played by 11 people in a team that aims to score goals against the opponent's goal to win. In general, the appeal of football lies in the many skills that must be mastered compared to other sports (Marcelino, et al., 2020). The many variations that must be mastered, players can play individually and be able to deal with the pressure exerted by opposing players. There are several skills that must be mastered by every football player including kicking the ball (shooting), stopping the ball (controlling), dribbling techniques, feinting techniques, heading techniques and throwing the ball in (throw in) (Folgar & Crisfield, 2021; Cox, 2019; Sharma & Rawat, 2018). In particular, dribbling skills have an important role in the game of football.

One of the basic football techniques that must be mastered is the basic technique of dribbling (Badiru, 2018). Dribbling is one of the basic techniques that must be mastered by every football player in addition to other basic techniques. Dribbling is a powerful weapon that can be used to strategize the game and set the tempo of the game (Sørensen, et al., 2021). Dribbling ability cannot be done without being supported by several other supporting elements. Physical condition is the most dominant element in developing these abilities. This is because without good physical abilities, a player cannot develop technical abilities in playing football.

Physical condition is the ability to deal with the physical demands of a sport to perform optimally (Doncaster, et al., 2020). Physical condition is a whole unit of interrelated components. Physical condition improvement cannot be done just like that, if you want to improve the physical condition of an athlete, then all components contained in physical conditions must also be developed and cannot be separated (Jäger et al., 2017). In football there are several physical components that must be owned by every football player, such as strength, endurance, explosive power, speed, flexibility, agility, coordination, balance, accuracy, and reaction (Syaifulah, et al., 2019; Farley, et al., 2021; Aminudin, et al., 2020). Football dribbling ability is inseparable from the support of good physical condition abilities, one of the factors that can affect football dribbling ability is speed, agility, leg power, and eye-foot coordination.

## Correlation Study between Speed, Agility, Leg Power, and Eye-Foot Coordination on the Dribbling Ability of Bali United Football Players in 2021

Research results Dwi Kuswoyo & Betaubun (2019) shows that there is a significant relationship between speed and dribbling ability. Good dribbling is supported by good agility. In playing football agility has a relationship with dribbling skills. This is also evidenced by the results of previous research, Tiryaki & Akcan (2021); Daulay & Azmi (2021) shows that agility has a contribution to dribbling skills. Another factor that influences dribbling is leg power. Leg power is a combination of speed and strength or the direction of maximum muscle force with maximum speed. Research results Putra & Juniardi (2020); shows that there is a relationship between limb power and dribbling ability.

Coordination in playing football is the ability to harmonize various kinds of football playing skills by utilizing several components of physical condition in order to display maximum play. Generally, coordination related to the game of football is eye-foot coordination. The relationship between eye and foot coordination with elements of speed and agility with dribbling skills is the creation of a series of movements that are in harmony with dribbling skills. In playing football eye and foot coordination has a relationship with dribbling skills. This is also evidenced by the results of previous research, Maidarman (2020) which shows that the elements of eye and foot coordination contribute to dribbling skills.

Based on the facts in the field, as happened to Bali United football players, according to the observations of researchers, they have different dribbling abilities. This can be seen during training and competing, generally players cannot dribble well and precisely, the factors of lack of speed, lack of coordination, weak leg muscle power and improper dribbling ability are things that need to be improved. Recorded in the 50 Meter running speed test, the average speed is 9.70 seconds in the sufficient category, the average leg power test is 36.10 cm in the sufficient category, the average agility test is 12.14 seconds in the sufficient category.

Other problems experienced during dribbling are: (1) the pedestal foot is not parallel to the direction of the target or the tip of the foot towards the target, (2) the part of the foot that hits the ball is not the inside but the sole of the foot, and the contact on the ball is not in the middle of the back of the ball but on the top of the ball, (3) the body position is not balanced when dribbling, (4) the player has not made a movement to bend the body forward and does not see the ball when dribbling. Based on the explanation of the results of these observations, this study intends to prove more deeply about "Correlation Study between Speed, Agility, Leg Power, and Eye-Foot Coordination on Dribbling Ability of Bali United Football Players in 2021".

### METHOD

This type of research is descriptive quantitative with a correlational approach. Correlational research is research conducted to determine whether there is a relationship and the amount of contribution between the two or several variables, if there is a relationship, how much is the strength of the relationship (regression) between these variables. The population in this study were 32 Bali United football players in 2021. The sampling technique used was total sampling. The speed instrument is measured by the 50 meter running test with units of seconds, agility is measured using the Illinois Agility Test with units of seconds, leg power is measured using the vertical jump test with units of centimeters, and dribbling ability is measured by the Short Dribbling Test test in units of seconds. The data analysis technique used is a prerequisite test consisting of normality test, linearity test, while hypothesis testing uses multiple regression analysis, partial and simultaneous tests. The analysis was carried out using SPSS 23.0 for windows.

### RESULTS

The results of descriptive analysis are intended to determine speed, agility, leg power, eye-foot coordination and dribbling ability. Descriptive statistical results based on mean and standard deviation are in Table 1.

**Table 1. Descriptive Statistics**

No.	Variables	Statistics
1	Speed	8.36 ± 0.79
2	Agility	16.48 ± 0.61
3	Leg Power	47.72 ± 2.69
4	Eye-Foot Coordination	27.97 ± 2.52
5	Dribbling Ability	14.29 ± 0.77

The data normality test in this study used the Kolmogorov-Smirnov method. The results of the data normality test carried out on each analysis group were carried out with the SPSS version 23.0 for windows software program with a significance level of 5% or 0.05. The data summary is presented in Table 2.

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**Table 2. Normality Test Results**

Variables	<i>p</i>	<i>Sig.</i>	Description
Speed ( $X_1$ )	0,552	0,05	Normal
Agility ( $X_2$ )	0,077		Normal
Leg Power ( $X_3$ )	0,657		Normal
Eye-Foot Coordination ( $X_4$ )	0,237		Normal
Dribbling Ability ( $Y$ )	0,423		Normal

Based on the statistical analysis of the normality test that has been carried out using the Kolmogorov-Smirnov test in Table 2, the variables of speed, agility, leg power, eye-foot coordination and dribbling ability obtained normality test results with  $p$ -value  $> 0.05$ , which means that the data is normally distributed.

Testing the linearity of the relationship is done through the F test. The relationship between the independent variable ( $X$ ) and the dependent variable ( $Y$ ) is declared linear if the  $p$ -value  $> 0.05$ . The results of the linearity test can be seen in Table 3.

**Table 3. Linearity Test Results**

Relationship	<i>p</i>	<i>Sig.</i>	Description
Speed ( $X_1$ ) $\rightarrow$ Dribbling Ability ( $Y$ )	0,456	0,05	Linear
Agility ( $X_2$ ) $\rightarrow$ Dribbling Ability ( $Y$ )	0,089	0,05	Linear
Leg Power ( $X_3$ ) $\rightarrow$ Dribbling Ability ( $Y$ )	0,061	0,05	Linear
Eye-Foot Coordination ( $X_4$ ) $\rightarrow$ Dribbling Ability ( $Y$ )	0,093	0,05	Linear

Based on the results of the analysis in Table 3 above, it can be seen that the relationship between speed to dribbling ability obtained a  $p$ -value of  $0.456 > 0.05$ , the relationship between agility to dribbling ability obtained a  $p$ -value of  $0.089 > 0.05$ , the relationship between limb power to dribbling ability obtained a  $p$ -value of  $0.061 > 0.05$ , the relationship between coordination to dribbling ability obtained  $0.093 > 0.05$ . It can be seen that all significance values ( $p$ )  $> 0.05$ , so the relationship between the independent variable and the dependent variable is declared linear.

Regression analysis is a statistical technique useful for examining and modeling the relationship between variables. The results of multiple linear analysis of the relationship between speed, agility, leg power, and eye-foot coordination on dribbling ability are presented in table 4 as follows:

**Table 4. Multiple Linear Regression Analysis Results**

Model		Unstandardized Coefficients		Standardized Coefficients
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>
1	(Constant)	11,033	2,672	
	Speed ( $X_1$ )	0,256	0,111	0,264
	Agility ( $X_2$ )	0,431	0,107	0,343
	Leg Power ( $X_3$ )	-0,069	0,026	-0,244
	Eye-Foot Coordination ( $X_4$ )	-0,096	0,033	-0,316

Based on table 4 above, the multiple linear regression equation resulting from this study can be determined as follows:

$$\text{Dribbling Ability (Y)} = 11,033 + 0,256 \text{ Speed (X}_1\text{)} + 0,431 \text{ Agility (X}_2\text{)} - 0,069 \text{ Leg Power (X}_3\text{)} - 0,096 \text{ Eye-Foot Coordination (X}_4\text{)}$$

Based on the results of the multiple linear equation above, it can be interpreted as follows:

The constant is **11.033** which means that if the variables of speed, agility, leg power, and eye-foot coordination are considered zero, then the dribbling ability variable is only **11.033**. The regression coefficient of the speed variable obtained a value of 0.256, which means that if the speed variable increases, while the agility, leg power, and eye-foot coordination variables are assumed to be fixed, the dribbling ability will increase by **0.256**. The regression coefficient of the agility variable obtained a value of **0.431**, which means that if the agility variable increases, while the speed, leg power, and eye-foot coordination variables are assumed to be fixed, the dribbling ability will increase by **0.431**. The regression coefficient of the limb power variable obtained a value of **-0.069** which means that if the limb power variable increases, while the speed, agility, and eye-foot coordination variables are assumed to be fixed, the dribbling ability will increase by **-0.069**. The regression coefficient of the leg-eye coordination variable

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obtained a value of **-0.096**, which means that if the leg-eye coordination variable increases, while the speed, agility, and leg power variables are assumed to remain, the dribbling ability will increase by **-0.096**.

Furthermore, hypothesis analysis is carried out, namely partial tests and simultaneous tests. The t test (partial) was conducted to determine the effect of each independent variable, namely speed, agility, leg power, and coordination on dribbling ability. The results of the t test (partial) analysis are presented in Table 5 as follows.

**Table 5. Partial Test Analysis Results (t test)**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.033	2.672		4.129	.000
	Speed (X <sub>1</sub> )	.256	.111	.264	2.309	.000
	Agility (X <sub>2</sub> )	.431	.107	.343	4.042	.000
	Leg Power (X <sub>3</sub> )	-.069	.026	-.244	-2.708	.000
	Eye-Foot Coordination (X <sub>4</sub> )	-.096	.033	-.316	-2.914	.000

a. Dependent Variable: Dribbling Ability (Y)

The speed variable obtained a p-value of 0.000. Because the p-value of 0.000 < 0.05, H<sub>0</sub> is rejected, meaning that Ha<sub>1</sub> which reads "There is a significant relationship between speed and the dribbling ability of Bali United football players in 2021" is accepted. Positive value, meaning that if the speed is getting better, the dribbling ability will be better.

The agility variable obtained a p-value of 0.000. Because the p-value of 0.000 < 0.05, H<sub>0</sub> is rejected, meaning that Ha<sub>2</sub> which reads "There is a significant relationship between agility and the dribbling ability of Bali United 2021 football players" is accepted. Positive value, meaning that if agility is getting better, then dribbling ability will also get better.

The limb power variable obtained a p-value of 0.000. Because the p-value is 0.000 < 0.05, H<sub>0</sub> is rejected, meaning that Ha<sub>3</sub> which reads "There is a significant relationship between limb power and the dribbling ability of Bali United football players in 2021" is accepted. Positive value, meaning that the better the leg power, the better the dribbling ability.

The eye-foot coordination variable obtained a p-value of 0.000. Because the p-value of 0.000 < 0.05, H<sub>0</sub> is rejected, meaning that Ha<sub>4</sub> which reads "There is a significant relationship between eye-foot coordination and the dribbling ability of Bali United football players in 2021" is accepted. Positive value, meaning that if eye-foot coordination is getting better, then dribbling ability will be better.

The F test is used to test the hypothesis whether the independent variables together (simultaneously) affect the dependent variable. Ha<sub>5</sub> reads "There is a significant influence between speed, agility, leg power, and eye-foot coordination on dribbling ability". The results of the analysis in Table 6.

**Table 6. F Test Analysis Results (Simultaneous)**

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15,545	4	3,886	40,031	.000 <sup>a</sup>
	Residual	2,621	27	0,097		
	Total	18,166	31			

a. Predictors: (Constant). Speed, Agility, Leg Power, Eye-Foot Coordination

b. Dependent Variable: Dribbling Ability

Based on Table 6 above, the F coefficient is 40.031 and the p-value is 0.000 < 0.05, then H<sub>0</sub> is rejected, meaning. The alternative hypothesis which reads "There is a significant relationship between speed, agility, leg power, and eye-foot coordination on the dribbling ability of Bali United football players in 2021", is accepted. It can be concluded that the regression model chosen is

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suitable for testing data and the regression model can be used to predict that speed, agility, leg power, and eye-foot coordination as predictors of football players' dribbling ability.

The Coefficient of Determination is essentially used to measure how far the ability of the regression model to explain the variation in the dependent variable. The analysis results in Table 7 are as follows.

**Table 7. Coefficient of Determination Analysis Results**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.925 <sup>a</sup>	0.856	0.834	0.31158
Predictors: (Constant), kecepatan, kelincahan, power tungkai, koordinasi mata-kaki				

The coefficient of determination or speed, agility, leg power, and eye-foot coordination in explaining or predicting the dribbling ability variable is 0.856 or 85.60%. This means that the variables of speed, agility, leg power, and eye-foot coordination have an influence on dribbling ability of 85.60%, while the rest is influenced by other factors of 14.40% outside this study.

### DISCUSSION

Based on the results of the study, it shows that there is a significant relationship between speed and the dribbling ability of Bali United football players in 2021. The contribution of speed to dribbling ability is 20.96%. These results are supported in research conducted Scharfen & Memmert (2019) shows that there is a significant relationship between speed and dribbling ability. Wilson et al., (2019) in his research states that there are differences in dribbling accompanied by maximum speed with dribbling with moderate speed during one vs one with opponents. The results of this study state that dribbling carried out at moderate speed is more accurately used in dribbling accompanied by maximum speed with dribbling at moderate speed.

In football games, especially in the basic skills of playing football, the speed of movement greatly affects the course of the game. One of them is in dribbling ability, the element of speed is needed so that players are able to dribble the ball well without the ball being released or the ball cannot be controlled by opponents and according to goals effectively and efficiently. Speed is a person's ability to move places in the shortest possible time. When dribbling in a football game, a player must do this dribbling movement as quickly as possible, this aims to keep away from opponents who will block. Dribbling is a technique in an effort to move the ball from one area to another during a football game. This means that to move the ball from one area to another, a player must have speed in order to avoid the opponent's obstacles.

The speed aspect is very necessary in a football game, because with a high running speed, a player who dribbles can break through and weaken the opponent's defense area, so the aspect of running speed in a football game is very important to be trained and improved through appropriate methods and regular training. Running speed in a football game will appear if a player can dribble quickly and as one of the physical elements that supports mastery of playing techniques and has a role in achieving optimal performance. Maximum speed is often an essential thing for all wing players in game sports. The physical condition element of running speed is very necessary in football games, especially for players with wing positions when counterattacking while dribbling. When players have mastered dribbling skills effectively, their contribution in the match will be very large.

Based on the results of the study, it shows that there is a significant relationship between agility and the dribbling ability of Bali United football players in 2021. The contribution of agility to dribbling ability is 23.69%. These results are supported in research conducted Sulistiyono, et al., (2022) shows that there is a significant relationship between agility and dribbling ability. Agility is the ability possessed by an athlete to make changes in movement quickly as a result of a stimulus without having to lose balance (Nygaard Falch, et al., 2019; Borkar, 2022). Agility is a form of movement that requires a person or player to move quickly and change direction and agility (Gelmis, et al., 2022). Therefore, someone who has good agility can easily change their body position while maintaining balance.

In the sport of football agility is needed to avoid the opponent's obstacles in a state of control of the ball or without the ball. in a state of control of the ball a player must have agility in order to avoid the opponent's obstacles. Agility in dribbling is not only carrying the ball along the ground straight ahead but the player is able to face opponents who are quite close and close by making quick movements to change the direction and position of his body, avoid collisions with opponents and bend his body to pass opponents. Agile players are players who move without losing balance and awareness of their body position. Agility is the ability to change direction quickly when moving at high speed.

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Agility is the most difficult element in its formation, because agility is the result of a combination of the formation of elements of speed, strength, and balance. Agility is very helpful for foot work in the game. Without agile and regular footwork players cannot change direction quickly when passing opponents. A player's agility will appear when the player can make quick movements to change the direction and position of his body, avoid collisions with opponents and be able to pass opposing players. Agility is used to coordinate various movements, facilitate mastery of techniques and facilitate orientation to opponents and surrounding circumstances. To improve dribbling skills, agility is one component that can contribute to improving these skills.

Based on the results of the study, it shows that there is a significant relationship between leg power and the dribbling ability of Bali United football players in 2021. The contribution of leg power to dribbling ability is 16.46%. These results are supported in research conducted Burhaein et al., (2020); Alfaroby, et al., (2022) shows that there is a significant relationship between limb power and dribbling ability. Limbs are lower limbs consisting of thighs, calves and feet. Limbs are also defined as limbs that support parts of the body and which will be used to walk from the base of the leg down which has a special ability to contract. Leg muscle power is the power to use maximum strength used in the shortest possible time (Alcazar, et al., 2020). Leg muscle explosive power is the ability of leg muscles to overcome or fight loads with maximum effort in carrying out certain activities (Hiskya & Wasa, 2019). The meaning of leg power in this study is the power of the physical condition components contained in the lower limbs, which consist of thighs, calves, to the tip of the foot. In addition to leg muscle power to get good dribbling ability, you must have agility to make it easier to outwit opponents.

Power is used when the ball comes off the foot, the greater the muscle power that supports the movement, the greater the speed produced. The right training method to increase leg muscle power is the pliometric method. Leg muscle power is not only used for kicking long distances, but also for acceleration in dribbling, especially when passing opponents. The motion components used in playing football (jumping, jumping, stomping) where the movement requires maximum power, so pliometric training is very suitable for football players.

Based on the results of the study, it shows that there is a significant relationship between eye-foot coordination and the dribbling ability of Bali United football players in 2021. The contribution of eye-foot coordination to dribbling ability is 24.49%. These results are supported in research conducted; Daulay & Azmi (2021) shows that there is a significant relationship between eye-foot coordination and dribbling ability. Coordination is a person's ability to combine various kinds of movements into a single movement. Coordination in playing football is the ability to harmonize various kinds of football playing skills by utilizing several components of physical condition in order to display maximum play (Ryngier, 2021). Generally, coordination related to football games is eye-foot coordination. The relationship between eye and foot coordination with the elements of speed and agility with dribbling skills is the creation of a series of movements that are in harmony with dribbling skills, meaning that the player is able to take advantage of his speed in dribbling by breaking into the opponent's third defense area and being able to pass several opposing players without losing control of the ball at his feet, so that the player can see the movement of the player in front of him. In addition, coordination also affects when players provide passes and receive passes from teammates when running in the opponent's defense area.

Coordination is a complex biomotor ability and is closely related to other physical abilities. It is used to control and combine other parts of the body involved in a complex movement model, in the correct sequence and combine these parts in a fluid movement model. A skill usually involves coordination between two limbs. In the game of football eye and foot coordination is an absolute thing in playing football. Eye and foot coordination is an integration between the eyes as the main function holder in seeing the game situation that will send visualization information to the brain and the feet as the function holder to perform a desired movement in accordance with the brain's command to respond to the situation that is happening in accordance with the information conveyed by the eye through its visual image (Szabo, et al., 2020). The movement between the eyes and feet must be combined into a harmonious and efficient movement pattern. Eye and foot coordination has a relationship with dribbling skills. In dribbling the coordination between the eyes and the ball must be appropriate. If dribbling looks in the direction of rolling the ball continuously, then what happens is a collision with an opposing player which results in player injury. Dribbling without seeing the ball, the ball will be left behind. Given the importance of coordination, coordination movements must be trained according to the needs of the player.

Based on the results of the study, it shows that there is a significant relationship between speed, agility, leg power, and eye-foot coordination on the dribbling ability of Bali United football players in 2021. The contribution of speed, agility, leg power, and eye-foot coordination to dribbling ability is 85.60%. Research results Fernandes, dkk., (2021) shows that agility, speed, and eye-foot coordination simultaneously affect the dribbling of football games. In the game of football, dribbling is a basic technique that must be owned by an accomplished football player. Dribbling is a technique in an effort to carry the ball from one area to another while the game is in progress. The basic techniques used in football games include basic dribbling techniques. Dribbling

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ability is the ability of players to move the ball using the turtle of the foot as quickly as possible to achieve goals without losing balance. Dribbling is a unique movement and action in the game of football which contains elements of art, because of the use of feet that touch the ball and are able to change direction and dribbling flexibility suddenly by rolling the ball to the ground while running (Fahmi & Nurrochmah, 2019).

Dribbling in football can be defined as a way of controlling the ball with your feet when you move or play on the field. Dribbling a football is not only running while carrying the ball but dribbling a football is also used to facilitate possession of the ball, so that the ball is easy when it will be passed or kicked into the goal. In the game of football, the basic techniques of dribbling must be truly owned and well mastered by a football athlete. The main mission when dribbling the ball is to get the opponent's area and make them lose their balance. Therefore, a player must be able to position the foot used to dribble the football when dribbling at a fast pace or defending the ball from an opponent.

The combined elements of speed, agility, leg power, and coordination when dribbling can make it difficult for opponents to grab the ball because the ball is always in control and close to the parts of the foot. These three elements of physical condition can provide peace of mind when the player dribbles in defending the ball from the opponent's attack. Players can take advantage of their speed to break into the opponent's defense area and players can change the direction of the run to get past the opposing players. This makes eye-foot coordination an element that plays a role along with the elements of speed and agility towards dribbling ability. Dribbling in addition to setting the tempo, organizing attacks and transitions, is also useful for scoring goals against the opponent's goal by passing the goalkeeper if it is directly opposite the goalkeeper. In line with the previous opinion, seen in football for novice players, dribbling is a basic technique that is most dominantly used in attacking defense and transition. The function of dribbling is to maintain the ball when running across opponents or advancing into open space. Dribbling can use various parts of the foot (inside, outside, instep, sole).

Dribbling is a running motion using part of the foot by pushing the ball so that it rolls continuously on the ground. Dribbling is only done at a favorable time, which is free from opponents. Dribbling has principles which include; 1) the ball is in the player's control, not easily captured by the opponent, and the ball is always controlled, 2) in front of the player there is an empty area which means free from opponents, 3) the ball is dribbled using the right foot and left foot, each step of the right or left foot pushes the ball forward, so the ball is pushed not kicked. The rhythm of touch on the ball changes the rhythm of the footsteps, 4) at the time of dribbling the eyes should not always be focused on the ball alone, but must also pay attention or observe the surrounding situation and the field or the position of opponents and friends, 5) the body is slightly leaning forward, free hand movements as in ordinary running time.

### CONCLUSIONS

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that: (1) There is a significant relationship between speed and the dribbling ability of Bali United football players in 2021. The contribution of speed to dribbling ability is 20.96%. (2) There is a significant relationship between agility and the dribbling ability of Bali United football players in 2021. The contribution of agility to dribbling ability is 23.69%. (3) There is a significant relationship between limb power and the dribbling ability of Bali United football players in 2021. The contribution of leg power to dribbling ability is 16.46%. (4) There is a significant relationship between eye-foot coordination and the dribbling ability of Bali United football players in 2021. The contribution of eye-foot coordination to dribbling ability is 24.49%. (5) There is a significant relationship between speed, agility, leg power, and eye-foot coordination on the dribbling ability of Bali United football players in 2021. The contribution of speed, agility, leg power, and eye-foot coordination to dribbling ability is 85.60%. For players who have speed, agility, leg power, and eye-foot coordination on dribbling ability in the deficient category are expected to improve by increasing the portion of training. For other researchers to add other independent variables and a large population, so that the variables that affect dribbling ability can be identified more and the results can be generalized. For coaches in general and especially football coaches, it is advisable to train the elements of speed, agility, leg power, and coordination.

### REFERENCES

- 1) Alcazar, J., Kamper, R. S., Aagaard, P., Haddock, B., Prescott, E., Ara, I., & Suetta, C. (2020). Relation between leg extension power and 30-s sit-to-stand muscle power in older adults: validation and translation to functional performance. *Scientific reports*, *10*(1), 1-8.
- 2) Alfaroby, M. I., Nurhidayat, N., & Denata, G. Y. (2022). The relationship between agility; eye-foot coordination; leg muscles strength and soccer dribbling skills of football school (SSB) players. *Journal of Coaching and Sports Science*, *1*(1), 6-12.

## Correlation Study between Speed, Agility, Leg Power, and Eye-Foot Coordination on the Dribbling Ability of Bali United Football Players in 2021

- 3) Aminudin, A., Sugiyanto, S., & Liskustyawati, H. (2020). Contribution leg muscle strength, dynamic balance and hip joint flexibility to the accuracy of football shooting. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 3(2), 912-918.
- 4) Badiru, D. (2018). *Physics of Soccer li: Science and Strategies for a Better Game*. iUniverse.
- 5) Borkar, P. (2022). Effect of core stability exercises on dynamic balance and agility in amateur badminton players. *Age*, 19(1.42), 21-5.
- 6) Burhaein, E., Ibrahim, B. K., & Pavlovic, R. (2020). The relationship of limb muscle power, balance, and coordination with instep shooting ability: A correlation study in under-18 football athletes. *International Journal of Human Movement and Sports Sciences*, 8(5), 265-270.
- 7) Cox, M. W. (2019). *Zonal marking: From Ajax to Zidane, the making of modern soccer*. Hachette UK.
- 8) Daulay, B., & Azmi, F. (2021). Coordination and agility: How is the correlation in improving soccer dribbling skills?. *Journal Sport Area*, 6(2), 147-161.
- 9) Doncaster, G., Page, R., White, P., Svenson, R., & Twist, C. (2020). Analysis of physical demands during youth soccer match-play: Considerations of sampling method and epoch length. *Research quarterly for exercise and sport*, 91(2), 326-334.
- 10) Dwi Kuswoyo, D., & Betaubun, P. (2019). Relationship between speed with dribbling skills on the students of physical education department in playing football at Universitas Musamus. *International Journal of Advanced Research in Engineering and Technology (IJARET)*, 10(6).
- 11) Fahmi, M. Y. N., & Nurrochmah, S. (2019, February). The effect of learning dribble variation using modification of plastic balls on improving the results of football dribble skills learning. In *2nd International Conference on Sports Sciences and Health 2018 (2nd ICSSH 2018)* (pp. 129-133). Atlantis Press.
- 12) Farley, J. B., Keogh, J. W., Woods, C. T., & Milne, N. (2021). Physical fitness profiles of female Australian football players across five competition levels. *Science and Medicine in Football*, 1-22.
- 13) Fernandes, O. F., Maesaroh, S., Rahmatullah, M. I., Murti, E., & Sulistiya, F. (2021). Analisis kelincahan, kecepatan, dan koordinasi mata-kaki dengan kemampuan dribbling tim sepak bola uss (uir soccer school). *Journal of Sport Education (JOPE)*, 3(2), 137-145.
- 14) Folgar, C., & Crisfield, D. W. (2021). *The Everything Kids' Soccer Book: Rules, techniques, and more about your favorite sport!*. Simon and Schuster.
- 15) Gelmis, A., Ozkan, N., Ahmad, A. J., & Guler, M. G. (2022). Perspectives on the Sustainability and Future Trajectory of Agile. In *European Conference on Software Process Improvement* (pp. 443-458). Springer, Cham.
- 16) Hiskya, H. J., & Wasa, C. (2019). Effect of double leg bound exercise on explosive capability of leg muscle power in the UnmuS volleyball men's team. *International Journal of Mechanical Engineering and Technology*, 10(2), 1453-1460.
- 17) Jäger, R., Kerksick, C. M., Campbell, B. I., Cribb, P. J., Wells, S. D., Skwiat, T. M., ... & Antonio, J. (2017). International society of sports nutrition position stand: protein and exercise. *Journal of the International Society of Sports Nutrition*, 14(1), 1-25.
- 18) Maidarman, M. (2020). Kontribusi kecepatan, kelincahan dan koordinasi mata-kaki terhadap kemampuan dribbling. *Jurnal Patriot*, 2(1), 206-219.
- 19) Marcelino, R., Sampaio, J., Amichay, G., Gonçalves, B., Couzin, I. D., & Nagy, M. (2020). Collective movement analysis reveals coordination tactics of team players in football matches. *Chaos, Solitons & Fractals*, 138, 109831.
- 20) Nygaard Falch, H., Guldteig Rædergård, H., & van den Tillaar, R. (2019). Effect of different physical training forms on change of direction ability: a systematic review and meta-analysis. *Sports Medicine-Open*, 5(1), 1-37.
- 21) Putra, Y. A., & Juniardi, A. (2020). Relationship of explosive muscle muscle towards dribbling skills in futsal game in Dehasen Academy. *Hanoman Journal: Physical Education and Sport*, 1(1), 24-32.
- 22) Ryngier, P. (2021). The influence of selected PNF patterns on kinaesthetic force differentiation ability in young football players. *Physiotherapy Review*, 25(1), 12-23.
- 23) Scharfen, H. E., & Memmert, D. (2019). The relationship between cognitive functions and sport-specific motor skills in elite youth soccer players. *Frontiers in psychology*, 10, 817.
- 24) Sharma, D., & Rawat, J. S. (2018). Constructions of objective skills test battery in soccer. *International Journal of Yogic, Human Movement and Sports Sciences 2018*; 3(1), 1177-1183
- 25) Sørensen, A., Sørensen, V., & Dalen, T. (2021). A novel approach for comparison of reception performance in a technique test and small-sided games. *Sports*, 9(5), 66.



## Correlation Study between Speed, Agility, Leg Power, and Eye-Foot Coordination on the Dribbling Ability of Bali United Football Players in 2021

- 26) Sulistiyono, S., Primasoni, N., Rahayu, T. W., & Galih, D. (2022). The Relationship between speed and agility on the football skills of young football players. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 11(1), 42-46.
- 27) Syaifullah, R., Sudarmanto, E., & Syaukani, A. A. (2019). Dominant physical factor determinant to play football. *Advances in Social Science, Education and Humanities Research*, volume 355.
- 28) Szabo, D. A., Neagu, N., & Sopa, I. S. (2020). Research regarding the development and evaluation of agility (balance, coordination and speed) in children aged 9-10 years. *Palestrica of the Third Millennium Civilization & Sport*, 21(1).
- 29) Tiryaki, E., & Akcan, F. (2021). Investigation of the effect of foot training using the agility ladder on dribbling skills in football. *European Journal of Physical Education and Sport Science*, 7(5).
- 30) Wilson, R. S., Smith, N. M., Ramos, S. D. P., Giuliano Caetano, F., Aparecido Rinaldo, M., Santiago, P. R. P., ... & Moura, F. A. (2019). Dribbling speed along curved paths predicts attacking performance in match-realistic one vs. one soccer games. *Journal of Sports Sciences*, 37(9), 1072-1079.



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## The Impact of Social Media Marketing on Small and Medium Scale businesses: A case study of laundry businesses in Port Harcourt, Rivers State, Nigeria



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**ABSTRACT:** The research on the importance of Social Media Marketing in small and medium-sized laundry companies in Port Harcourt was conducted to find out how profit, customer base, and customer complaints are impacted by social media marketing. The study used purposive sampling technique, and survey approach through questionnaires to generate primary data from the 198 respondents. The study found that there is a positive and significant relationship between profitability, customer base, and customer complaints resolution. This implies that with consistent and improved social media marketing by the SMEs in the laundry business, their profits and customer base will improve. The study concluded that SMEs could benefit from SMM. It is recommended that SMEs should improve their social media marketing using various methods as this will increase their customer base, profitability, and faster customer complaints resolution.

**KEYWORDS:** social media, customer complaints, laundry, SMEs, Profitability

### I. INTRODUCTION

Social media is the buzz word today. It has become one of the most important aspects of our lives. Many of the people in the developed and developing countries are connected through social media technology either one way or the other (Asnin et al, 2021). It has become a critical aspect of human lives where friends are made as well as where many people get most of their daily news from (Kajongwe et al, 2020).

Social media has also become an important aspect of businesses through social media marketing (SMM) (Infante & Mardikaningsih, 2022). Many small and medium scale businesses have established their presence online through having social media pages, websites, and blogs as well as social media handlers and influencers (Ainin et al, 2015). These social media marketers and handlers oversee the businesses social media life of the SMEs (Abou-Shouk et al, 2013).

Access to the internet has given rise to a wide range of business successes such as having easier access to information, faster connection to customers and prospects from across the world, sharing of information, content; gaining more knowledge on vast subjects and generally staying updated on the happenings around the world (Abayomi et al, 2022). According to (Liu et al, 2020), many business transformations have occurred over the past few years due to the introduction of the internet. These changes such as social media, websites, and other advanced technologies have resulted to much more information circulation than ever before (Liu et al, 2020). As observed by (Suryani et al, 2022), the use of the internet since the dawn of the 21st century has greatly altered the business model of many SMEs businesses. Many structured and unstructured businesses have started using the web to aid in their business operations (Mokhtar et al, 2017). They use these websites to market their products or services as well as communicate effectively with their customers across the world (Erwin et al, 2022).

The use of social media, ecommerce and blogs has become a more affordable and faster marketing media than the traditional radio, TV, and newspaper adverts (Salam et al, 2021). It is regarded as one of the most profitable avenues of promoting small and medium scale business ventures (Suryanto et al, 2022). Armawan et al (2022) recalled that some of the SMEs started as drop-shippers, bloggers, content, or marketers. They didn't require to have an office space, employ people, or buy furniture before starting. They started with their phones and laptops. The low or nonexistent barriers to entry have given many SMEs the fighting chance in the marketplace (Chatterjee & Kar, 2020). This was only made possible using social media and the internet.

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With the growing acceptance of the internet as a means of conducting businesses, the SMEs began structuring their online presence and their business models (Qalati et al, 2021). As the cash inflow and revenues began to grow, the SMEs started changing their revenue models to suit the growing business (Qalati et al, 2021).

As stated by Wardati et al. (2019), one of the fastest marketing channels is social media. In 2010, Coremetrics, a web analytics company, predicted that social media expenditures by the SMEs could rise \$3.1b by 2014 (Coremetrics, 2010). This trend has greatly rattled the advertising and marketing communications industry (Suryanto et al, 2022). For instance, it has de-cluttered the marketing strategy and reduced it to interactive, narrowly targeted approaches and towards greater integration of company communications (Effendi et al, 2020). As against the normal paid online adverts such as banners and texts, social media marketing or social network marketing requires just creativity; creating viral content (video or text) through the company's brand pages and handles (Coremetrics, 2010). When this is done through the most popular social media sites such as Bejite, Facebook, X, LinkedIn, Instagram, and Tiktok, it generates far more revenue than the usual advertising media channels (Effendi et al, 2020). Social network features such as sharing and voting provide collaborative design and product launch leading to immediacy as well as convenience to customers (Evans, 2009). It will also promote the brand publicity of the company (Evans, 2009).

As pointed out earlier, there is already a paradigm shift from the way advertisements were conducted in the past through TVs, newspapers, and other traditional forms (Suryanto et al, 2022). It has moved to much more interactive platforms such as social media (Erlangga, 2021). The customers communicate directly with the company and vice versa. There is real-time feedback. Although, the growth of social media has presented a wonderful opportunity for the SMEs, Pentina et al. (2012), acknowledges that the decision by SMEs to adopt the use of the SNM is not automatic as they still need to create the needed metrics to launch their products online.

An SME is owned and operated by an entrepreneur or a group of entrepreneurs who see the commercial potency of an idea (Qalati et al, 2021). The entrepreneur secures the needed funds as well as provides the needed force to launch the idea for commercial exploitation (Wardati et al, 2019). Launching a new business idea comes with its challenges. Market share and competitions are some of the major challenges SMEs face and using social media marketing techniques has become a veritable tool for SMEs to establish their niche in the minds of their targeted markets (Subagja et al, 2022). This is where a strong social media presence comes in. With the active social media presence, the company builds a cult of followers who will help spread the news about their products and services with their circles (Wardati et al, 2019).

Laundry and dry-cleaning firms however face a daunting task when it comes to determining what levels of quality is acceptable in cleaning as each customer perceives quality differently (Kyengo, 2007). This perceptions and other issues that may affect sales and customer satisfaction are usually found out through social media engagements.

In Nigeria, Rivers state in particular, there are many laundry service SMEs. They can be categorized into structured and the unstructured laundry firms. Structured laundry businesses have all the elements of a structured business: launderers, marketers, accountants, managers, and social media marketers (Subagja et al, 2022). However, for the unstructured laundry SMEs, most of the activities are usually rolled up into one person or few people (Fraccastoro et al, 2021). In most cases, social media engagements usually become a daunting task – which is later abandoned entirely. This makes it difficult for such category of SMEs to take proper advantage of the SNM.

### **A. Statement of the problem**

The declining state of the Nigerian economy is a stark reminder that the future is not yet bright (Oyewobi et al, 2022). With two recessions, political instability, increasing insecurity, food shortages, rising unemployment and poverty, the outlook on the Gross Domestic Product is bleak (Ayokunmi et al, 2022). The lack of maintenance culture has caused many of the infrastructures built during the oil boom period to be left to rot away (Oyekan, 2022). Delivery of important services such as electricity and telecommunication, and health have grossly deteriorated over the recent years (Ogunleye & Simon-Oke, 2004). Security of lives and properties have also worsened. As a result, unemployment has been on the increase. There are consistently few job opportunities while there are ever increasing number of jobseekers (Ogunleye & Simon-Oke, 2004).

Nigerian youths have been forced to take the lemon and turn it into a lemonade. Many youths have decided to toe the path of entrepreneurship by creating their own jobs as well as for others. This has been the trend for the past ten to fifteen years or more (Oyekan, 2022).

The laundry business has been one of the most engaged business opportunities by entrepreneurs. The venture does not require huge capital or special skills to begin. This makes it relatively attractive to newbies that have decided to join the entrepreneurship ship (Obiora & Uche, 2023). However, starting a laundry business is easy but sustaining it requires more work.

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For the structured laundry business, it requires much more to start it and sustain it (Obiora & Uche, 2023). According to (Oyekan, 2022), one way to keep any business running is to ensure there are a lot of customers that patronize their commodities. The cash flow is kept positive all the time. But in a case of lack of customers and negative cash flow, the business folds up sooner than later.

Structured laundry businesses in Port Harcourt, Rivers state have engaged the services of trained marketers to help them convince more customers to patronize their brand of laundry services. These marketers are usually the point of connection between the company and their customers. This is usually a disadvantage when a marketer has complete control of all the company's customers. He takes them along with him when leaving.

This is where social media engagements differ. The customers know the company's brand and not an individual. This helps to keep them even if the social media handler has left the company. Therefore, this study intends to find out how much social media marketing has been able to affect structured laundry businesses in Port Harcourt.

The aim of this study is to find out how social media marketing has affected laundry companies in Port Harcourt, Rivers State, 2022. Specifically, the study aims to find out:

1. How social media marketing has increased customer base of laundry SMEs in the state
2. How social media marketing has increased profit of the laundry SMEs
3. How social media marketing has helped to reduce customer conflict resolution and support system

## **B. Research questions**

1. Has social media marketing helped to increase customer base of laundry SMEs in Port Harcourt?
2. Has social media marketing helped to increase the profit of laundry SMEs in Port Harcourt, Rivers state?
3. Has social media marketing helped to make better conflict resolution with customers of laundry SMEs in Port Harcourt, Rivers state?

## **C. Research Hypothesis**

H<sub>01</sub>: social media marketing does not have any significant impact on the customer base of structured laundry SMEs in Port Harcourt, Rivers State

H<sub>02</sub>: social media marketing does not have any significant impact on the profit of structured laundry SMEs in Port Harcourt, Rivers State

H<sub>03</sub>: social media marketing does not have any significant impact on the conflict resolution of structured laundry SMEs in Port Harcourt, Rivers State.

## **II. LITERATURE REVIEW**

### **A. Conceptual Framework**

According to Lovelock and Wirtz (2004), services encompass actions or performances offered by one party to another, whether for financial gain or not. They contend that while these processes may sometimes be connected to a physical product, the performance itself is often fleeting, intangible, and does not result in the acquisition of any factor of production. Due to their inherent nature, services have been characterized as abstract and elusive constructs (Parasuraman, Zeithaml & Berry, 1988). Nevertheless, there is a consensus that services share common attributes: they are intangible, highly perishable, inseparable from their providers, and exhibit heterogeneity (Kotler & Armstrong, 2010; Agbonifoh et al., 2007).

In addition to these characteristics, time and the influence of others play pivotal roles in both the delivery and evaluation of services (Odia & Isibor, 2014; Lovelock & Wirtz, 2004). It is worth noting that many organizations operate within the service industry (Kotler & Keller, 2009). This is primarily because the offerings of most companies consist, to varying degrees, of service components (Levitt, 1972).

For example, laundry and dry-cleaning businesses provide cleaning services. As described by Kyengo (2007), cleaning, as a systematic process, aims to eliminate unwanted substances from the environment. Laundry and dry-cleaning share all the hallmark traits of services. They are intangible, cannot be stockpiled, and are highly variable in quality. The perception of relevant "others" also significantly influences whether a customer will be satisfied.

While laundry and dry cleaning are often used interchangeably, Himanshi (2017) underscores that these terms are not synonymous. He observes that although both processes aim to remove dirt, they differ in the methods employed. Dry cleaning involves the use of chemicals, such as perchloroethylene, to eliminate stains, while laundering relies on washing with water, soap, or other detergents.

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Quality can be defined as a customer's overall impression of an organization and its services (Fogli, 2006). In the long term, relative quality compared to competitors has been identified as the single most crucial factor that ensures performance, customer loyalty, sustained market share growth, and high profitability (Civelek et al, 2020).

Huilaja (1998) noted that the assessment of service quality in laundry and dry cleaning can be approached from four distinct dimensions:

1. **Technical Quality:** This dimension involves various aspects related to the cleaning process, including cleaning frequency, the utilization of technology, the organization of service delivery, control systems, follow-up procedures, and the technical and professional competence of the cleaning staff.
2. **Functional Quality:** The functional dimension revolves around factors such as the speed of service, flexibility in meeting customer needs, and the attitude displayed by the cleaning personnel.
3. **Aesthetic Quality:** Aesthetic quality refers to the way the service is provided and the attention to detail in creating a pleasing business environment for customers.
4. **Process Quality:** Process quality assesses the flexibility of the cleaning service provision. It also considers the factors that influence the quality of laundry and dry-cleaning services, including pricing (cost), customer expectations and requirements, the reliability of the service provider, their responsiveness to issues like disasters and complaints, overall working efficiency, and a thorough analysis of the competition in the market.

In the context of laundry and dry-cleaning services, the perception of relevant individuals plays a significant role in determining service quality. According to Parasuraman et al. (1985), customer satisfaction is achieved when the service performance exceeds their expectations. In 1988, the term Servqual scale was introduced. It is designed to assist service providers in strategizing and assessing their performance in meeting customer expectations regarding quality. While the Servqual scale has faced criticism from various quarters (Gilmore, 2003), Lovelock and Wirtz (2004) argued that these criticisms do not undermine the scale but rather underscore the challenges of measuring customer perceptions of quality.

The Servqual scale gauges customer perceptions of quality across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Parasuraman et al. (1988) also concurred that across different service industries, customers consistently prioritize reliability as the most crucial quality criterion.

However, Andaleeb & Conway (2006) observed a variation in the restaurant industry in the United States, where responsiveness of frontline employees emerged as the most critical service criterion.

In the Nigerian context, Isibor & Odia (2014) found that reliability ranked highest as the most important quality dimension in the restaurant industry, while responsiveness took precedence in the transportation service sector. Thus, contrary to the findings of Parasuraman et al. (1988), the significance of each service quality dimension varies depending on the specific service context and the nature of the core business within the sector (Isibor & Odia, 2014).

### **B. Theoretical reviews**

1. The Technology Acceptance Model (TAM) fundamentally elucidates how technology users come to embrace and utilize the technology in question. TAM, developed by Davis (1989), outlines the causal connections between system design characteristics, the perception of usefulness, the perception of ease of use, the attitude toward usage, and the actual utilization behavior. When individuals encounter a novel technology, their decision on when and how to use it is influenced by several factors, including their perception of its usefulness—how much they believe using a specific system would enhance their job performance—and their perception of its ease of use—how effortless they believe using the system would be. TAM has found application in numerous studies related to social media usage (Granić & Marangunić, 2019; Sheng & Zolfagharian, 2014). These studies converge on the idea that the adoption of social media hinges on the perceived usefulness and ease of use. These perceptions, in turn, shape an individual's attitude toward using social media (their intention). As per TAM, intentions to employ technology ultimately dictate whether a person will indeed use that technology or not (their behavior). This theory holds significant relevance in the present study, as it derives two key constructs from TAM: perceived usefulness and perceived ease of use of social media.

2. The Theory of Planned Behavior (TPB) extends the Theory of Reasoned Action (TRA) by introducing perceived behavioral control as an additional factor influencing intention and behavior (Bosnjak et al, 2020). TPB posits that behavior directly hinges on behavioral intention, which, in turn, is determined by three elements: attitude, subjective norm, and perceived behavioral control. Ajzen (1991) conducted a review of various studies employing the TPB model and concluded that attitude, subjective norms, and perceived behavioral control consistently predict behavioral intentions with a high degree of accuracy. TPB has proven effective in comprehending individual acceptance and usage of technologies (Harrison et al., 1997). This theory benefits

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the present study as the behavior of individuals to patronize laundry services through social media advertisements hinges on the individual's perceptions of whether such patronage will benefit them; how their friends and families have benefitted from such in the past and if it really a better choice for them.

3. The Social Identity Theory (SIT) suggests that individuals define themselves based on both personal and social aspects (Tajfel, 1982). Personal identity encompasses a person's unique traits, including individual characteristics and abilities. The social aspect, known as social identification, pertains to the perception of belonging to a particular social group (Scheepers & Ellemers, 2019). Tajfel (1981) defined social identity as the part of an individual's self-concept that arises from their awareness of belonging to one or more social groups, along with the value and emotional significance attached to that group membership. Social identity thus fosters positive associations with participatory behavior, such as the intention to use and the actual utilization of social media (Lee et al., 2011). Consequently, this theory supports the current study by elucidating individuals' behaviors and attitudes concerning their identification with the usage of social media.

### **Social media Engagement and SME Businesses**

Diffley and Kearns (2011) conducted focused group studies involving individuals from various age groups to gauge their perceptions of social networking sites and how these platforms influenced their purchasing decisions. They emphasized the importance of companies integrating advertisements and engaging consumers rather than intruding on their privacy or causing irritation. Users expressed a preference for avoiding noisy ads, pop-ups, and rollovers, as their primary motivation for using social networking sites was to engage in conversations with friends (Malesev & Cherry, 2021).

Companies that successfully engage consumers can encourage them to listen to messages and potentially share them with others (Patma et al, 2021). The potential of social networking sites (SNSs) as effective marketing tools lies in involving consumers in marketing activities on these platforms. This approach requires companies to attract consumers rather than pushing marketing messages onto them. Social media users want to be social and have their voices heard. Customers use the internet to communicate their needs, and businesses respond accordingly. This shift transforms customers from mere consumers to "prosumers" who actively co-create marketing content with companies and brands (Sedalo et al, 2021).

Organizations are increasingly turning to online social media marketing campaigns to connect with customers where they spend their time online. However, a major challenge many companies face is the lack of understanding on how to effectively use social media, which performance indicators to measure, and how to measure them. Additionally, social media platforms like YouTube, Facebook, and X (formerly Twitter) are often treated as isolated elements rather than integral components of an integrated system.

Infante & Mardikaningsih (2022) study on the potential of social media as a means of online business promotion using the qualitative research method found that the use of social media makes it easier for SMEs to cut down on cost and improve their profit. Their study concluded that businesses using the internet and social media are innovative. By using the internet, businesses can conduct different marketing activities online to promote their business.

### **C. Empirical reviews**

Chatterjee & Kar (2020) conducted a study examining how social media marketing (SMM) affects Small and Medium Enterprises (SMEs) in India. They focused on factors facilitating SMEs in adopting SMM to enhance their business outcomes. SMM adoption significantly improved SMEs' business performance, sales, customer engagement, understanding customer needs, and employee creativity. Their theoretical model integrated elements from TAM and UTAUT2 with modifications to explore this impact, validated through a survey of 310 firms using structural equation modeling. The results showed that perceived usefulness, perceived ease of use, and compatibility positively influenced SMM's impact post-adoption by SMEs. Facilitating conditions had limited influence, while cost had a notable negative impact on SMM use by SMEs. This research contributes to the limited literature on SMM's impact on SMEs in emerging economies.

In their 2014 research, Öztamur and Karakadilar emphasized that social media is not just a fun way to communicate but a vital part of business marketing. They aimed to study how Small and Medium-Sized Enterprises (SMEs) use social media as a marketing tool. They compared four American and Turkish companies on Facebook and Twitter, considering likes, content, customer interaction, and language. The study, using a qualitative method, found that Turkish SMEs struggle with formal language and uninteresting content, while American SMEs are less effective on Twitter compared to Facebook.

Spiller (2011) delved into the realm of social media and its role in direct and interactive integrated marketing communication. The study explored the evolution of direct and interactive social media, highlighting recent advancements in digital and interactive channels. A notable development is the concept of social direct strategies, which entails direct and interactive marketing communication applications facilitated through social customer relationship management. The research examined

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how marketers perceive social media as a tool for raising awareness and branding, rather than solely a channel for direct response. It also identified opportunities to employ social media as both a relationship-building and sales channel.

In their 2020 study examining the influence of social media on Small and Medium Enterprises (SMEs) in Zimbabwe, Kajongwe et al (2020) highlighted that SMEs in the country face significant challenges leading to failures and closures due to shrinking sales and a limited customer base. They emphasized the importance of SMEs embracing social media, a prominent 21st-century technology, for market expansion and customer loyalty. The study aimed to explore the relationship between social media and firm performance, particularly among SMEs, which remains relatively unexplored. Using a quantitative approach with 54 respondents in Zimbabwe's Harare Metropolitan Province, the research found a positive connection between social media and SMEs' business strategies. Additionally, it showed that social media enhances brand awareness, customer relations, and productivity for SMEs in Zimbabwe. Given the limited research on social media's impact on SMEs in developing countries, this study offers valuable insights. It suggests that marketing professionals should consider using social media, and scholars should further investigate its effects on performance in diverse settings. Overall, the study implies that social media advertising, communication, and crowd engagement contribute to improved SME performance in Zimbabwe.

Asnin et al (2021) conducted research aimed at identifying the social media marketing strategies used by small- and medium-sized enterprises (SMEs) in Malaysia. They also examined the impact of these strategies on business performance. Social media presents a new marketing platform, offering opportunities for business growth, but many SMEs struggled with strategy development. The study employed the technology, organization, and environment model by Tornatzky and Fleischer (1990) as a theoretical framework, making minor adjustments. Interviews were conducted with 36 SME owners in Malaysia, and data was analyzed thematically and contextually. The results showed that social media marketing positively affected business performance, including financial and non-financial aspects. SMEs utilized different strategies for platforms like Facebook and Instagram, although some found it challenging to maintain equal efforts on both.

### **III. METHODOLOGY**

#### **Research Design**

This study focuses on examining the effect of social media marketing on structured laundry business in Port Harcourt, Rivers, state. The research adopted a descriptive research design and cross-sectional approach.

#### **Target Population and Sample Size Determination**

The study focused on structured laundry companies in Port Harcourt, Rivers state. Using a purposive sampling technique, an estimated 441 structured laundry SME businesses in Port Harcourt were chosen.

To determine the appropriate size of the sample for the study, the Taro Yamene formula was adopted. Since samples are representation of the population, the Taro Yamene formula was adopted to derive a sample size. This was done at error margin of 0.05.

Formula:

$$n = \frac{N}{1+N(e)^2}$$

Where:

e = level of significance = 0.05

N = Number of accessible populations = 500

$$n = \frac{500}{1+500(0.05)^2}$$

Therefore, the sample size = 222.22

The sample size for this study is 222 drawn from the 500 of the estimated population of the study as earlier stated for the analysis. The questionnaires were distributed to respondents of the various SMEs. The 222 questionnaires were randomly distributed to lower and midlevel management staff in marketing, sales and IT of the companies using the simple random sampling techniques.

#### **Nature/Sources of Data Collection**

The nature of the study is an ordinal scale, and the study proposes using primary sources in the gathering data mainly from structured questionnaires issued to the target sample. The questionnaire was close ended based on 5likert scale. The choice of the questionnaire type is to make it easier for respondents to answer as well as easier analysis. Where necessary, face-to-face interview was used to elicit the required information from the respondents. All the information from interviews will not form part of the data for the analyses and hypotheses testing. However, it will provide a source for background information and the findings in context.

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## Instrument of Data Collection

Copies of the data collection instrument (questionnaires) were administered directly to respondents. Instruments guiding the filling of the instrument were given and explained to the respondents. To ensure a high response rate with low error rate, the researcher and his agents supervised the filling of the questionnaires, and the instruments were retrieved on the spot.

A twenty (20) items instrument was used for the study. The instrument is titled "Effects of Social Media Marketing on Structured Laundry Businesses in Port Harcourt, River's state." The instrument is subdivided into two sections: A and B. Section A contains bio-data information of each respondent while section B comprises of the variables under study. The instrument with five (5) responses level of: Agree, Strongly Agree, Disagree, Strongly Disagree, and Neutral. It is weighted 5 points, 4 points, 3 points, 2 points, and 1 point respectively.

## Data Analysis Techniques

The data collected were presented in tables while the values were expressed in percentages. Descriptive analysis was conducted to quickly understand the nature of the data used. Again, Pearson coefficient correlation is the statistical tool used to test the hypotheses formulated for the study. Pearson is used to test the strength of the relationship between the dependent and the independent variables.

Further, reliability/validity test was conducted to ensure the dataset is valid for the analysis. The face and content validity instrument of this study covered social media marketing tools used for the study. The research study sought the input of experts to ensure the questionnaire is valid. Further, a pilot survey was conducted using 10 SMEs in the laundry business to equally validate the questionnaire.

The reliability of the instrument was determined through a pilot study involving test-retest of the questionnaire on a few of the same respondents. The retrieved copies were scored, coded, and inputted into computer for the calculation of reliability using Cronbach alpha method to determine the level of the result.

### A. Data Analysis

The survey questionnaires were distributed to 222 respondents and only 198 were correctly filled in and returned. This indicates 89% return rate, implying high response rate.

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SMM	198	1.00	3.00	1.7092	.57402	.309	.244	-.977	.483
P	198	1.00	4.25	2.1046	.71982	.330	.244	-.355	.483
CCR	198	1.00	3.60	2.0857	.74943	.011	.244	-1.198	.483

According to Mishra et al (2019), the descriptive analysis shows the nature of the data used. As the analysis shows, the mean range between 1.7 and 2.1, indicating a closer average among the variables. The analysis also reveals that the standard deviation, which shows how much the variables deviate from the true mean, is not far from the true mean. The standard deviation shows that the variables are closer to zero (0.57 to 0.7), indicating that they can be used for further analysis. The skewness also shows that the variables are normally distributed as the data is closer to zero (Orcan, 2020). The skewness of the variables shows that they are slightly positively skewed at 0.309, 0.330, 0.011 respectively.

**Table 1: Reliability Statistics**

Cronbach's Alpha	N of Items
.928	198

The consistency and robustness of a dataset is shown by the reliability/validity analysis according to Noble et al (2019). Reliability test ensures that data used for the analysis produces results that are consistent over time (Lawless et al., 2010). The



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dataset is reliable and can be used for further analysis based on Cronbach's Alpha (0.928) according to the table. This value is more than 0.5 being the lowest acceptable value for dataset reliability.

		SMM	P	CCR	CB
SMM	Pearson Correlation	1	.548**	.529**	.529**
	Sig. (2-tailed)		.000	.000	.000
	N	198	198	198	198
P	Pearson Correlation	.548**	1	.631**	.631**
	Sig. (2-tailed)	.000		.000	.000
	N	198	198	198	198
CCR	Pearson Correlation	.529**	.631**	.783	1
	Sig. (2-tailed)	.000	.000		
	N	198	198	198	198
CB	Pearson Correlation	.544**	.605**	.783	1
	Sig. (2-tailed)	.000	.000		
	N	198	198	198	198

Source: Authors computation (2023)

### SMM = f(P, CCR, CB)

Where SMM – Social Media Marketing

P – Profit

CB – Customer Base

CCR – Customer Conflict Resolution

SMM (0.548, 0.631, 0.544)

### Tests of Hypotheses

According to the works of Djordjević et al (2021), Pearson correlation analysis tests for the strength of relationship between variables. The Pearson correlation tests reveal the strength of the relationship between two variables, stressing how important one variable is to the other variable and vice versa (Djordjević et al, 2021). For the study, the Pearson correlation relationship will be used to investigate the relationships between each of the independent variables against the dependent variable.

**H<sub>01</sub>:** social media marketing does not have any significant impact on the customer base of laundry SMEs in Port Harcourt, Rivers State

The Pearson analysis shows a positive and significant relationship between customer base and social media marketing of SMEs in the laundry industry. The result shows that social media marketing is strongly correlated to customer base at 0.544. The implication is that as social marketing activities increase, customer base improves and vice versa. Further research shows that laundry SMEs in Port Harcourt with active SMM garner more followers and customers than SMEs without active social media accounts. We will therefore, reject the null hypothesis, accept the alternative, and conclude that there is a positive and significant relationship between SMM and CB in laundry SMEs, Port Harcourt.

**H<sub>02</sub>:** social media marketing does not have any significant impact on the profit of laundry SMEs in Port Harcourt, Rivers State

The analysis indicates that there is a positive and significant relationship between social media marketing and profit of SME businesses in the laundry industry in Port Harcourt. The data shows a high relationship at 0.548. Using social media marketing improves the profitability of laundry businesses as the respondents concluded. Further analysis shows that laundry SMEs have wider reach through SMM at a lower cost than through the traditional marketing channels such as newspapers and TV stations. We will therefore reject the null, accept the alternative and conclude there is a positive and significant relationship between SMM and P in laundry SMEs.

**H<sub>03</sub>:** social media marketing does not have any significant impact on the conflict resolution of laundry SMEs in Port Harcourt, Rivers State

The analysis shows that social media marketing has a significant and positive impact on conflict resolution. The analysis shows that the strength of the relationship between CCR and SMM is 0.529, showing that with active social media account, laundry SMEs can resolve customer complaints faster and easier. With this, they can retain more customers, having more repeat customers than laundry SMEs without active social media accounts. We will therefore accept the alternative hypothesis, reject the null and conclude there is a positive and significant relationship between CCR and SMM in SME laundry businesses.

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## B. Discussion of findings

The analysis shows that SMEs in laundry business in Port Harcourt can benefit from social media marketing. As the study reveals, profit and customer base can be improved while customer complaints can be resolved easily through the tools of social media. The study shows that customer base can be improved through social media. This agrees with the findings of Suharto et al (2020) whose findings revealed that customer loyalty is increased through social media. Further, the analysis showed a positive and significant relationship with profit and customer complaints resolution. Findings from Nuseir & Aljumah, (2020) also agree with the findings of this study on the importance of social media marketing in SMEs laundry business in Port Harcourt.

## C. Conclusion and recommendations

The study was able to analyse the key importance of social media marketing on the success of SMEs in the laundry business in Port Harcourt, Rivers State. The analysis reveals that social media marketing improves profitability, customer satisfaction through conflict resolution, and customer base. Therefore, the study recommends that social media marketing should be intensified by SMEs in the industry as it is shown to have positive and significant impact on the profitability and customer base. Again, customer resolution is faster through SMM, indicating that SMEs can leverage on this to meet the needs of their clients easily.

## REFERENCES

- 1) Abayomi, A., Angioha, P. U., & Abang, T. (2021). COVID 19 pandemic and entrepreneurship enterprise in Calabar, Cross River State, Nigeria. *Journal of Good Governance and Sustainable Development in Africa*, 6(1), 23-29.
- 2) Abou-Shouk, M., Megicks, P. & Lim, W. M. (2013). Perceived benefits and e-commerce adoption by SME travel agents in developing countries evidence from Egypt. *Journal of Hospitality and Tourism Research*, 37(4), 490-515.
- 3) Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N. I., & MohdShuib, N. L. (2015). Factors influencing the use of social media by SMEs and its performance outcomes. *Industrial Management and Data System*, 11(3), 570-588.
- 4) Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes*, 50(2), 179-211.
- 5) Armawan, I., Pratikto, H., Sopiah, S., & Sudarmiatin, S. (2022, November). Utilization of social media application in regency SMEs performance. In *AIP Conference Proceedings* (Vol. 2658, No. 1). AIP Publishing.
- 6) Asnin, T. N., Prambudia, Y., & Ma'ali El Hadi, R. (2021). Developing Strategies to Improve Business Model of Online Laundry Marketplace Startup. *International Journal of Innovation in Enterprise System*, 5(02), 134-143.
- 7) Ayokunmi, L. A., Seman, N. A. A., & Rashid, U. K. (2022). The relationship between social media marketing and SMEs performance in Nigeria: A systemic literature review. *Journal of Positive School Psychology*, 6(3), 8665-8673.
- 8) Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology*, 16(3), 352.
- 9) Chatterjee, S., & Kar, A. K. (2020). Why do small and medium enterprises use social media marketing and what is the impact: Empirical insights from India. *International Journal of Information Management*, 53, 102103.
- 10) Civelek, M., Gajdka, K., Světlík, J., & Vavrečka, V. (2020). Differences in the usage of online marketing and social media tools: evidence from Czech, Slovakian and Hungarian SMEs. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 15(3), 537-563.
- 11) Effendi, M. I., Sugandini, D., & Istanto, Y. (2020). Social media adoption in SMEs impacted by COVID-19: The TOE model. *The Journal of Asian Finance, Economics and Business (JAFEB)*, 7(11), 915-925.
- 12) Erlangga, H. (2021). Effect of digital marketing and social media on purchase intention of Smes food products. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(3), 3672-3678.
- 13) Erwin, E., Ardyan, E., & Putra, S. D. (2022). SOCIAL MEDIA MARKETING TRENDS: INFLUENCERS'ACCOUNTS FOR SMES PRODUCT MARKETING. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 6(3), 1949-1958.
- 14) Fraccastoro, S., Gabrielsson, M., & Pullins, E. B. (2021). The integrated use of social media, digital, and traditional communication tools in the B2B sales process of international SMEs. *International Business Review*, 30(4), 101776.
- 15) Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, 50(5), 2572-2593.
- 16) Infante, A., & Mardikaningsih, R. (2022). The Potential of social media as a Means of Online Business Promotion. *Journal of Social Science Studies (JOS3)*, 2(2), 45-49.

## The Impact of Social Media Marketing on Small and Medium Scale businesses: A case study of laundry businesses in Port Harcourt, Rivers State, Nigeria

- 17) Kajongwe, C; Chinyena, E; Mugutso, R & Mambo, R. (2020). Social Media and Marketing Performance of Small and Medium Enterprises (SMEs) in Harare Metropolitan Province, Zimbabwe. *Journal of African Interdisciplinary Studies*, 4(4), 66 – 77
- 18) Liu, C., Feng, Y., Lin, D., Wu, L., & Guo, M. (2020). IoT based laundry services: an application of big data analytics, intelligent logistics management, and machine learning techniques. *International Journal of Production Research*, 58(17), 5113-5131.
- 19) Malesev, S., & Cherry, M. (2021). Digital and social media marketing-growing market share for construction SMEs. *Construction Economics and Building*, 21(1), 65-82.
- 20) Mokhtar, N. F., Hasan, Z. R. A., & Halim, A. S. A. (2017). The social media and marketing strategies: how it impacts the small and medium sized enterprises business performance. *Australian Journal of Business and Management Research*, 3(4), 184-190.
- 21) Nuseir, M. T., & Aljumah, A. (2020). The role of digital marketing in business performance with the moderating effect of environment factors among SMEs of UAE. *International Journal of Innovation, Creativity and Change*, 11(3), 310-324.
- 22) Obiora, A. V., & Uche, A. O. (2023). REASSESSING THE IMPACT OF COVID-19 LOCKDOWN ON TRADERS' ADOPTION OF SOCIAL MEDIA CHANNELS IN THE SOUTHEAST GEOPOLITICAL ZONE OF NIGERIA. *UBS Journal of Business and Economic Policy*, 1(2), 152-164.
- 23) Orcan, F. (2020). Parametric or non-parametric: Skewness to test normality for mean comparison. *International Journal of Assessment Tools in Education*, 7(2), 255-265.
- 24) Oyekan, M. (2022). Social Media Marketing and Small and Medium Enterprises (SMEs) in Nigeria. *International Journal of Social Sciences and Humanities Invention*, 9(11), 7343-7350.
- 25) Oyewobi, L., Adedayo, O. F., Olorunyomi, S. O., & Jimoh, R. A. (2022). Influence of social media adoption on the performance of construction small and medium-sized enterprises (SMEs) in Abuja–Nigeria. *Engineering, Construction and Architectural Management*.
- 26) Öztamur, D., & Karakadılar, İ. S. (2014). Exploring the role of social media for SMEs: as a new marketing strategy tool for the firm performance perspective. *Procedia-Social and behavioral sciences*, 150, 511-520.
- 27) Patma, T. S., Wardana, L. W., Wibowo, A., Narmaditya, B. S., & Akbarina, F. (2021). The impact of social media marketing for Indonesian SMEs sustainability: Lesson from Covid-19 pandemic. *Cogent Business & Management*, 8(1), 1953679.
- 28) Qalati, S. A., Yuan, L. W., Khan, M. A. S., & Anwar, F. (2021). A mediated model on the adoption of social media and SMEs' performance in developing countries. *Technology in Society*, 64, 101513.
- 29) Salam, M. T., Imtiaz, H., & Burhan, M. (2021). The perceptions of SME retailers towards the usage of social media marketing amid COVID-19 crisis. *Journal of Entrepreneurship in Emerging Economies*, 13(4), 588-605.
- 30) Scheepers, D., & Ellemers, N. (2019). Social identity theory. *Social psychology in action: Evidence-based interventions from theory to practice*, 129-143.
- 31) Sedalo, G., Boateng, H., & Kosiba, J. P. (2022). Exploring social media affordance in relationship marketing practices in SMEs. *Digital Business*, 2(1), 100017.
- 32) Subagja, A. D., Ausat, A. M. A., & Suherlan, S. (2022). The Role of Social Media Utilization and Innovativeness on SMEs Performance. *JURNAL IPTEKKOM (Jurnal Ilmu Pengetahuan & Teknologi Informasi)*, 24(2), 85-102.
- 33) Suharto, S., Junaedi, I., Muhdar, H., Firmansyah, A., & Sarana, S. (2022). Consumer loyalty of Indonesia e-commerce SMEs: the role of social media marketing and customer satisfaction. *International Journal of Data and Network Science*, 6(2), 383-390.
- 34) Suryani, E., Hendrawan, R. A., Limanto, B., Wafda, F., & Auliyah, I. (2022). The impact of social media engagement on market Share: a system dynamics model. *Journal of Information Systems Engineering and Business Intelligence*, 8(1), 71-79.
- 35) Suryanto, S., & Cahaya, Y. F. (2022). IMPROVING THE PERFORMANCE OF LAUNDRY SMES IN TERMS OF LOCATION THROUGH DIGITAL TRANSFORMATION. *Dinasti International Journal of Digital Business Management*, 3(5), 811-826.
- 36) Trawnih, A., Yaseen, H., Al-Adwan, A. S., Alsoud, R., & Jaber, O. A. (2021). Factors influencing social media adoption among smes during Covid-19 crisis. *Journal of Management Information and Decision Sciences*, 24(6), 1-18.
- 37) Wardati, N. K., & Mahendrawathi, E. R. (2019). The impact of social media usage on the sales process in small and medium enterprises (SMEs): A systematic literature review. *Procedia Computer*



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## Effectiveness Analysis of Teamwork Management Based on Machine Intelligence



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**ABSTRACT:** Teamwork in an organization often experiences ups and downs in interpersonal relationships due to ineffective communication-interaction problems. Whereas in addition to leadership issues, organizational effectiveness is also largely determined by the interactions within the organization. Poor interaction-communication is the result of interpersonal ignorance of one another. This study tries to analyze the effectiveness of cooperation based on the machine intelligence owned by each personal organization, where methods like this are relatively not widely known. This study uses an approach that is a combination of qualitative and quantitative in a population of school organizations that consist of one principal and seven teachers. From this study, it was found that (1) relatively small relationship scores exist in four people including the principal as the leader of the organization, and (2) organizational personnel can play the appropriate roles of the five roles based on their machine intelligence. This study concludes that the analyzed school organization has a lot of interaction-communication conflicts, so a personal understanding of each other is needed based on their respective intelligence machines. By understanding machine intelligence, each member of the organization will be able to treat others appropriately both in interaction and communication so that the organization runs effectively.

**KEYWORDS:** Effectiveness, Teamwork Management, Intelligence Machine

### INTRODUCTION

The biggest problem in organizations is communication. Poor interpersonal communication between organizations will cause conflict and weaken the existence of teamwork. According to Hardjana (2006), conflict is a difference in perception in measuring the interests and competition of each individual or work unit. The organization always seeks a way out of conflict so that it is able to suppress the consequences and the smallest risks so as not to endanger the organization. Conflicts that are too hard will not only create chaos but will also have an impact on stress and even frustration for the individuals involved in the organizational environment. Therefore, between organization and communication are two things that cannot be separated, which are interrelated with each other. Organization is the art of organizing things, while communication is a means to convey the meaning of the organization. Organizational communication is the most strategic tool in carrying out various organizational activities so that their main tasks and functions can be carried out in achieving goals effectively and efficiently (Napitupulu, 2019).

Effective communication is related to the ability of communicators and their communicants (Wisman, 2017). According to Soelaiman (2007) ability is an inborn or learned trait that allows a person to complete his work, both mentally and physically. Effective communication is influenced by knowledge and the environment, namely how the messenger sends messages that are tailored to the recipient of the message and the environment created by interpersonal relationships (Effendy, 2005). So, from this condition, informal communication will be built. Informal communication is formed from interactions between individuals with one another in the organization. Therefore, information in informal communication networks goes in unpredictable directions, and the network is strongly influenced by the nature and intimacy between individuals in the organization (Wahid, 2014).

It should be noted that research on the effectiveness of teamwork management in the last four years has continued to increase. This is because the trend current to be able to achieve success or optimal performance requires a collaborative strategy with other people/parties. Currently, it is no longer possible to achieve success by relying on oneself without involving

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other people in a team. This phenomenon trend has become one of the principles of modern management that is more progressive and makes cooperation and collaboration an easy way to achieve success. This is in line with the statement that the strength of togetherness of individuals who are interdependent and have unity of thought and action is the main capital of an organization to achieve optimal results (Andayani, 2007; Arif et al., 2017) so that it will be able to provide optimal services to its users so that it will be able to provide optimal services to its users. (Muhti, Sunaryo, and ABS, 2017).

This study reveals the pattern of relationships between principals and teachers and the effectiveness of teamwork in schools. Researchers try to uncover this relationship through the intelligence engine in the Genetic STIFIn concept (Poniman & Amalia, 2020). The researcher realizes that this research is something that has not been done much before to determine the effectiveness of teamwork management by examining aspects of intelligence and personality type. A similar study was actually conducted by Arifin & Gunadi (2017) who concluded that the STIFIn concept used as the basis for openness in interpersonal communication (Widyadharma et al., 2020) greatly affects the performance of individuals whose personality types are already known by other team members superior). So that superiors easily use communication patterns that match the type of subordinates, compared to subordinates whose personality type is not known. This interpersonal openness makes it easier to realize effective communication which in turn will achieve an effective organization (Hall, 1974).

### LITERATURE REVIEW

#### *School as a professional organization*

Organization is a forum for activities of people who work together in their efforts to achieve common goals. The problem of unifying the same vision, mission and goals with the existence of a group of people in society are factors that affect the existence of an organization. Whatever the name or background of an organization, it always requires teamwork that is able to carry out the vision, mission and goals in an integrated work harmony. This is an effective organization, ie, when the target output is measured by comparing the output with should plan the output realization. So, it is called effective if the output should be greater than output the planned (Schermerhorn, 1996). Meanwhile, according to Hidayat (1986), effectiveness is a unit of effectiveness is a unit of measure that states how far the target (quantity, quality, and time) has been achieved. The greater the percentage achieved, the higher the effectiveness. Meanwhile Handoko (2000) states that effectiveness is the result achieved by workers compared to the number of other production results within a certain period of time. Rivai (2009) states that organizational effectiveness is largely determined by a number of perspectives, namely (1) goal optimization, (2) systems, and (3) human behavior. Casida (2011) states that the effectiveness of the organizations is affected by four factors: Involvement in organizational culture, Consistency, Adaptation, and Mission.

In the world of education, schools are formal organizations that have a vision, mission and goals that are in line with the ideals and hopes of a country. As an organization protected by state laws and regulations, schools should be managed as well as possible in accordance with science and correct management principles (Ariawati, 2015; Napitupulu, 2019). To improve the quality of management, schools are managed with school management that empowers and optimizes the potential proportionally from all elements of the school, from leaders to lower level education implementers (Hartani, 2011). By looking at this, all elements of the school should become a unified team, solid and responsible for all problems that arise from within the school and outside the school. This is very important considering the school's workload and responsibilities are not light, so that with a solid work team, they will be able to overcome any problems that arise. School success cannot rely on each individual without depending on the work team.

The impact that can be caused due to the disorganization of the work team in schools will have an impact not only on the poor performance of individual school members but also on the performance of the school as a whole. Moreover, if the school is located in a suburban area or outside a metropolitan city area, of course cohesiveness is an issue. more important than others. As a result of the incompatibility of the school work team, it will have an impact on the low level of school services, especially in the learning process, which will also decline sharply. Between teachers will burden each other, the principal's leadership process will also be ineffective in carrying out daily operations, learning targets will not be achieved, and so on which makes the overall school performance worse.

Although to restore school performance, it can be done through various trainings (Baidi et al., 2020) so that each member/teacher has the ability to improve school performance, it will not necessarily show tangible results and have a long-term impact. This is partly because the team members do not understand each other's conditions. For this reason, it can be done through fostering working relationships, both between members of the organization and between organizational leaders and their subordinates or other members. The target of fostering working relationships in organizations or companies is the achievement of compact and harmonious cooperation between fellow members of the organization (Setiyani, 2012).

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### **Communication and Cooperation**

In the context of organizational effectiveness, the presence of teamwork is a necessity to realize mutual success. Teamwork is a force that encourages the synergy of each individual within the company work team. Without good cooperation between team members it is impossible to produce brilliant ideas. In line with the opinion of Bachtiar (2004) that cooperation is the power of synergy between individuals so that they are able to achieve the same goals according to plans and expectations. It is through this collaboration that the power of ideas becomes solid which in turn leads to mutual success. Tracy (2006) states that teamwork is an activity managed by a group of people who are members of one organization.

Teamwork is a group whose individual efforts produce higher performance than the results obtained if the work is completed alone (Robbins and Judge, 2008). Andayani (2007); De Toro & Tenner (1992) added that teamwork is a form of work in groups that must be managed properly to achieve a goal or complete a task. The same thing was conveyed by Arizona (2017) that teamwork is a process where a group of people gather their resources and expertise to work together and achieve a common goal. Teamwork is important because it can produce productivity. The results of Sriyono's research (2013) state that teamwork, job satisfaction, and loyalty have a positive and significant effect on productivity. Meanwhile, Arif, et al (2017) in their research found that *teamwork* has a positive effect on employee loyalty. Teamwork is more effective than individual work, as West (2002) argues, many studies have shown that teamwork leads to better efficiency and effectiveness. This is very different from work carried out by individuals.

Cooperation is intended as a joint effort of a group of people to achieve a common goal (Soekanto, 1990; Baron, Branscombe, and Byrne, 2008). Cooperation is a personal involvement between the two parties in order to achieve optimal resolution of the problems faced (Sunarto, 2000). Cooperation can improve communication in teamwork within and between parts of the company/institution. Collaboration gathers talent, shares tasks and responsibilities to achieve common goals (Tracy, 2006). So, cooperation is a joint effort between individuals or groups between the two parties for a common goal and get faster and better results. If the goals to be achieved are different, cooperation will not be achieved (Yusuf, 2017).

Thus, a solid team must work under one command and organizational culture which is internalized into the soul of every member of the organization so that teamwork is in a harmonious step. With the existence of a cohesive and solid team, the organization will run effectively and efficiently. Solid teamwork if they have the same or equivalent abilities (Burn, 2004), but are more varied in both abilities and backgrounds. As the opinion of Sutrisna (2007) that the work team consists of individuals who have various competencies who work in one line of coordination of a leader in order to realize interdependence in order to achieve a goal or complete a task.

### **Genetic Intelligence Machine**

One thing that is interesting when discussing humans is to understand the type and character of a person including intelligence. It is said to be interesting because the discussion always leads to the form of behavior and various other uniqueness about various intelligences. Many theories examine the types of human intelligence, along with the implications that exist in everyday life. However, not all intelligence theories are specifically applied in the field of education and in other fields, including human resource management.

This genetic intelligence machine is part of the STIFIn Genetic concept which is a synthesis of theories that are well known in science, such as the theory of basic human (basic function) from CG Jung, and the Triune Brain theory from Paul D. MacLean (Poniman, 2015). Furthermore, Poniman & Amalia (2020) states that the genetic intelligence engine is a tendency to dominate the functions of the human brain hemispheres over other hemispheres that form patterns of thought and behavior on stimulants that come from the environment where this tendency is genetic non-heredity (not inherited).

Differences in interpersonal intelligence machines will distinguish forms of behavior based on these tendencies, including in interaction and communication. If each person does not know each other about the types and types of intelligence machines, it is certain that it will lead to misunderstandings or mistreatment of one person to another (Widyadharma et al., 2020). This is what triggers disharmony in interpersonal relationships due to mistakes or inaccuracies in acting and/or acting.

The concept of STIFIn Genetics divides intelligence machines based on the hemispheres of the human brain, namely (1) Thinking and Intuition which are located in the Neocortex hemisphere; (2) Feeling and Sensing located in the Lymbic hemisphere; and Instinct which is located in the Reptile hemisphere. These hemispheres have distinctive functions and ways of working that will also determine the shape of a person's behavior. In addition, the STIFIn concept further reveals that the intelligence engine in the Cortex and Lymbic hemispheres will work with two stimulant models based on the lining of the brain, namely an introverted inner layer, and an extroverted outer layer. So if the Sensing intelligence machine is coupled with an introvert it becomes a Sensing Introvert (Si), and if Sensing is coupled with an extrovert it becomes a Sensing extrovert, and so

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on except the Instinct intelligence machine which does not have a membrane lining the brain because it is located in the Reptile brain hemisphere which is at the base of the brain stem. decomposes to the tail of the spine (Poniman & Andi M, 2013).

### METHODS

This research was conducted in one public elementary school with a quantitative approach with descriptive evaluative analysis method. The use of full sampling at the research site because there are only seven teachers and one principal. Data retrieval using a questionnaire, and biometric tests on subjects by scanning fingerprints. The STIFIn biometric test is carried out by scanning each person's ten fingers. The fingerprint scan, which carries information about the composition of the nervous system, is then analyzed and linked to a particular brain hemisphere that is dominantly acting as an operating system and becomes an intelligence machine (MK).

The data was collected by scanning the fingerprints of the test subjects, namely the principal and seven teachers. The way the STIFIn Genetic test works is by scanning the ten fingerprints of a person's hand using a scanner or fingerprint tool. Then the scan results are sent to a computer server central and processed through an application system to determine where the dominant brain hemisphere and dominant brain layer are in the tested individual. In other words, a person's MK type can be known from the test results in less than 24 hours.

Data analysis on the results of the fingerprint test was carried out by making a matrix of relationships between school members, then calculating friendship scores, leadership scores and managerial scores. Meanwhile, the data from the questionnaires were recapitulated and analyzed descriptively, which was then followed by data interpretation. The results of the score analysis using the STIFIn method are used to provide a comparison of the descriptive analysis of the questionnaire in order to draw conclusions on the effectiveness of the organization.

The Genetic STIFIn concept can be implemented in various fields according to their needs, for example to determine the effectiveness of the organization in which there are people involved. By knowing each type of intelligence machine or personality type, it will be known the relationship with one another in the relationship between intelligence machines equivalence. The pattern of these relationships also has a score which then becomes information or estimates of the level of effectiveness that exists within an organization. In terms of knowing the level of effectiveness of cooperation in the organization, the scores that need to be calculated are (a) the Score of Friendship/SoF, (b) the Score of Leadership/SoL; and (c) the Score of Managerialship/SoM.

### RESULTS

From the data collection carried out, the following data were obtained.

#### *Data on the results of the Genetic STIFIn test*

From the fingerprint biometric data retrieval of each informant/respondent in the organization, the following data were obtained.

**Table 1.** Genetic STIFIn Test Results

Informant Code	Position	Intelligence Machine	Personality
KS	Principal	I (Intuiting)	li (Intuiting introvert)
Gr1	Teacher 1	T (Thinking)	Ti (Thinking introvert)
Gr2	Teacher 2	I (Intuiting)	li (Intuiting introvert)
Gr3	Teacher 3	T (Thinking)	Te (Thinking extrovert)
Gr4	Teacher 4	S (Sensing)	Si (Sensing introvert)
Gr5	Teacher 5	In (Instinct)	In (Instinct)
Gr6	Teacher 6	F (Feeling)	Fe (Feeling extrovert)
Gr7	Teacher 7	I (Intuiting)	Ie (Intuiting extrovert)

**Source:** Test output results on the STIFIn promoter application

#### *Data from questionnaires and surveys/observations*

Meanwhile, from the results of the questionnaires/questionnaires distributed to informants, the following data were obtained.

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**Table 2. Recapitulation of Teamwork Questionnaire Results**

Aspects	KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Rerata
Responsible Attitude	13%	13%	13%	12%	14%	12%	12%	13%	13%
Teamwork	14%	13%	12%	12%	13%	10%	13%	12%	13%
Openness	15%	13%	12%	14%	12%	12%	12%	10%	13%
Summary	42%	39%	37%	38%	39%	34%	37%	35%	38%

Source: The results of the research questionnaire in the research subject schools (processed)

The data above shows that of the eight personal school organizations that have relatively responsibility, teamwork and openness, only two people, namely the principal and one teacher. While the other six each had two positive aspects of one person, only one positive aspect of four people, and none at all.

### Score Relationship Between Intelligence Machines

Furthermore, to find out how the relationship between school principals and teachers in a work team, it can be known through the relationship between these intelligence machines according to the Genetic STIFIn concept based on the relationship between intelligence machines equivalence (Poniman, 2018), as shown in Table 3 below.

**Table 3. Interpersonal Relationship Matrix**

		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7
		li	Ti	li	Te	Si	In	Fe	le
KS	li		Conquer-ed	Equi-valent	Conquer-ed	Conquer-ing	Support-ed	Support-ing	Equi-valent
Gr1	Ti	Conquer-ing		Conquer-ing	Equi-valent	Support-ed	Support-ing	Conquer-ed	Conquer-ing
Gr2	li	Equi-valent	Conquer-ed		Conquer-ed	Conquer-ing	Support-ed	Support-ing	Equi-valent
Gr3	Te	Conquer-ing	Equi-valent	Conquer-ing		Support-ed	Support-ing	Conquer-ed	Conquer-ing
Gr4	Si	Conquer-ed	Support-ing	Conquer-ed	Support-ing		Conquer-ing	Support-ed	Conquer-ed
Gr5	In	Support-ing	Support-ed	Support-ing	Support-ed	Conquer-ed		Conquer-ing	Support-ing
Gr6	Fe	Support-ed	Conquer-ing	Support-ed	Conquer-ing	Support-ing	Conquer-ed		Support-ed
Gr7	le	Equi-valent	Conquer-ed	Equi-valent	Conquer-ed	Conquer-ing	Support-ed	Support-ing	

Source: Fingerprint Scan Test Results with STIFIn Method

Based on Table 3 above, then the calculation of each relationship score is as follows.

#### 1. Friendship Score (SoF/Score of Friendship)

The first score that is calculated friendship score what we called the score of friendship (SoF). Friendship Score is the conversion of how comfortable the friendship between Constitutional Courts is in the form of numbers (Poniman, 2018). The conversion results show a measure of how much someone with one Constitutional Court has the convenience of being friends with another Constitutional Court. The best friendship score is 4 and the lowest is 0. The results are as follows.



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**Table 4.1. SoF School Team**

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	4	0	1	3	2	4	14
Gr1	Ti	1		1	4	3	2	0	1	12
Gr2	li	4	0		0	1	3	2	4	14
Gr3	Te	1	4	1		3	2	0	1	12
Gr4	Si	0	2	0	2		1	3	0	8
Gr5	In	2	3	2	3	0		1	2	13
Gr6	Fe	3	1	2	1	2	0		3	12
Gr7	le	4	0	4	0	1	3	2		14
Total Passive Scores (TSP)		15	10	14	10	11	14	10	15	
Index of Friend (IoF)		0.93	1.40	1.00	1.40	1.27	1.00	1.40	0.93	

**Source:** Result of Relationship Scoring Analysis (processed)

**Note:**

IoF = the number of friendship coherence energy based on the activeness of the energy given compared to what is received. If condition as  $IoF > 1$  then there is no need for friendship.

Table 4.1. above provides information about the relationship map of each individual in the team unit. From the TSA value (the number of active scores) it shows that of the eight team members, only Gr4 has the lowest friendship score, which means Gr4 does not contribute enough to the team. The same thing is also shown in the number of passive scores (TSP) which is relatively low (score = 11). Overall, the team in terms of friendship is quite good because the friendship index (IoF) which scores  $IoF < 1$  is only for two people, including the principal, while the other six have  $IoF \text{ scores} \geq 1$ .

### 2. Leadership Score (SoL/Score of Leadership)

The next score calculates the Score of Leadership (SoL), where this is the conversion of how much influence one's leadership has on his followers, into the form of numbers (Poniman, 2018). The score for the most influential leadership relationship is 4 and the lowest is 0.

**Table 4.2. SoL School Team**

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	2	0	4	3	1	2	14
Gr1	Ti	4		4	2	2	1	0	4	17
Gr2	li	2	0		0	4	3	4	2	15
Gr3	Te	4	2	4		2	1	0	4	17
Gr4	Si	0	1	0	1		4	3	0	9
Gr5	In	1	3	1	3	0		4	1	13
Gr6	Fe	3	4	3	4	1	0		3	18
Gr7	le	2	0	2	0	4	3	1		14
Total Passive Scores (TSP)		16	10	16	10	17	15	13	16	
Index of Friend (IoF)		0.75	1.70	0.94	1.70	0.53	0.87	1.38	0.75	

**Source:** Result of Relationship Scoring Analysis (processed)

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**Note:**

IoL = number of leadership energy coherence based on the activeness of the energy given versus the one received.

In terms of leadership, principals have a leadership index (IoL=0.75) which is quite low although not the lowest compared to Gr4 (IoL=0.53). This means that the influence of the principal as a team leader is still balanced by Gr4 or other teachers whose IoL scores are less than 1 (IoL<1) such as Gr2 (IoL=0.94), Gr4 (IoL=0.53), Gr5 (IoL=0.87), and Gr7 (IoL=0.75). The principal will find it difficult to carry out his leadership in the team. Gr4 with a low index score also has an active score of 9 (nine).

### 3. Managerial Score (SoF/Score of Managerialship)

The last score that is calculated is the Score of Managerialship (SoM), which is the conversion of how much someone accepts obedience or movement reactions from subordinates, into numbers (Poniman, 2018). The following is the result of the calculation.

**Table 4.3.** SoM School Team

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	2	0	3	4	1	2	12
Gr1	Ti	3		3	2	4	1	0	3	16
Gr2	li	2	0		0	3	4	1	2	12
Gr3	Te	3	2	3		4	1	0	3	16
Gr4	Si	0	1	0	2		3	4	0	10
Gr5	In	4	1	4	1	3		3	4	20
Gr6	Fe	4	3	4	3	1	0		4	19
Gr7	le	2	0	2	0	3	4	1		12
Total Passive Scores (TSP)		18	7	18	8	21	17	10	18	
Index of Friend (IoF)		0.67	2.29	0.67	2.00	0.48	1.18	1.90	0.67	

Source: Result of Relationship Scoring Analysis (processed)

**Note:**

IoM = the number of managerial energy coherence based on the activity of the energy given versus the one received.

Meanwhile, the managerial score illustrates that Gr4 has the lowest active score and the largest passive score so that the lowest index number (IoM) is 0.48. The principal has an index number below 1 such as Gr2, and Gr7, namely IoM=0.67. This means that in terms of team management, the principal was also tested and challenged by three other teachers whose IoM score <1.

## DISCUSSION

### Interaction-Communication Relations

In building group cooperation, a transparent attitude is needed (McLaurin & Al Amri, 2008), and to create such openness it also requires the will and ability of every member of the organization to convey it in a good communication pattern. Therefore, according to Setiyani (2012) communicating is not just talking, making a sound but how a person's ability to argue with others about what he thinks or feels, so that others are willing to accept his opinion. In addition, in the communication process, it is necessary to pay attention to the elements of the character of each other party so as not to cause misunderstandings.

Teamwork and harmonious interactions within the organization are needed in order to create an effective organization. Therefore, (West, 2002) stated that in order to establish open communication and effective organizational management, three things are needed, namely (1) a responsible attitude, (2) readiness to cooperate with other team members, and (3) an open attitude.

In the data presentation of the research findings in Table 2 where in the attitude of responsibility there are three members whose scores are below the average. In teamwork and an open attitude, there are only three members who are ready to cooperate and willing to be open. This negative trend shows that currently, the management of the organization has not been able to run well. This data proves the source of the problems experienced by the organization/school. In this case, organizational

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leaders need to examine carefully to prove the truth of this, and changes in the behavior of the members concerned can be made if it leads to destructive ones (Hellriegel et al., 2011; Hersey & Blanchard, 1988).

However, when viewed globally, the average score on the attitude of responsibility, teamwork, and openness is still relatively good, because it is still above the normative average (12.5%). As well as with the total number of only four members who are in the normative number (37.5%). In addition, the value possessed by the principal as a leader is also the highest, so that the effectiveness of cooperation can be achieved.

### Relationship Between Scores

By looking at the numbers for each index in each individual, the three scores can be combined as shown in the following table.

**Table 5. Recapitulation of Relationship Scoring**

	KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Averag
	li	Ti	li	Te	Si	In	Fe	le	e
IoF	0.93	1.40	1.00	1.40	1.27	1.00	1.40	0.93	1.17
IoL	0.75	1.70	0.94	1.70	0.53	0.87	1.38	0.75	1.08
IoM	0.67	2.29	0.67	2.00	0.48	1.18	1.90	0.67	1.23
Average	0.78	1.80	0.87	1.70	0.76	1.02	1.56	0.78	1.16

**Source:** Result of analysis (processed)

Table 5 above shows some team members who have an average combined index of below or less than 1, while others are above 1. This illustrates the potential problems within the team to be able to be solid in teamwork.

In this study, it appears that the average IoF, IoL, and IoM indices are still above 1, and the average index score is 1.16 (above 1). This means that in terms of team leadership, they are considered the most vulnerable (IoL=1.08), although in team management they are relatively the best (IoM=1.23). The opposite distance between leadership and management scores that far apart describe the team working according to procedures but not directed. However, this condition is not very visible because of the friendship score that makes the relationship fluid at work. With the overall average index of 1.16, it can be assumed that the individual team is in the comfort zone of working in a team in a friendly atmosphere.

The lowest average SoL (=1.08) indicates that there is weak leadership in the school which is also shown in the principal's low SoL score. Meanwhile, the highest average SoM (=1.23) informs that the management of the organization/school lies with the individuals within the organization.

An interesting phenomenon from the data from this research is the Feeling extrovert (Fe), Thinking introvert (Ti), Thinking extrovert (Te), and Instinct (In) type which is the most dominant being the driving force, while the Intuiting type is both introverted and extroverted, and a Sensing introvert (Si) average overall score is below the global average (1.16). It can be interpreted that with one type of MK conquering several MKs, it tends to have a positive value where this occurs when Fe conquers Ti and Te. The Fe type who tends to lead and likes to regenerate the two Thinking's members is considered very good, plus the In (instinct) type who conquers Fe, and has the nature of always wanting to help. Meanwhile, if several MKs conquer one MK, it tends to have a negative value, as type Si is conquered by two li and one le.

### Effectiveness of School Organizations

Based on the results of the Genetic STIFIn test that has been carried out, these relationships can be mapped according to Table 6 below.

**Table 6. Roles in communication and interaction**

Role	Terms of Condition	Role Description
Mentor	If MK beats another MK	The defeated individual MK becomes the mentor of the defeated individual MK as a mentee. Mentors provide direction and input to their mentees.
Facilitator	If MK is defeated by another MK	The defeated individual MK acts as a facilitator for the individual MK who defeated him. The function of the facilitator is to provide facility services for the needs of those he/she serves.

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Coach	If the supported MK by another MK	Individual MK who are supported by individual MK take on the role of Coach for the MK who support them as Coachee. Coach sets an example and coaches on what Coachee must achieve.
Motivator	If the supporting MK other MK	Individual MK that support serve as a motivator for the individual MK they support. Motivators provide support and encourage those they support in order to achieve optimal results.
Partner	If MK is equivalent	The same individual MK take on each other's roles as partners. Partners work to support each other on equality.

Source: (Poniman, 2018)

### Remarks:

The above roles are carried out by adjusting each intelligence machine each individual faced so that the interaction and interpersonal communication relationships will be effective, and overall within the team will make it easier to interact with each other.

### Research Implications

By knowing the pattern of individual relationships based on the intelligence machine owned by each member of the organization, the results of this study have the following implications.

1. Problems about the relationship between individuals resulting from past interactions-communication processes can be identified and solved by knowing the machine intelligence of each member.
2. For newly formed organizations or individuals who have just led an organization, they can use problem-solving as in this study to find out the intelligence machine map of each member in order to anticipate the emergence of problems resulting from interaction communication.

The two things above are the implications of the research as conveyed by Rahma & Mas'ud (2016) that organizational problems begin with problematic patterns of interaction and communication, and can be parsed and resolved also with effective patterns of interaction and communication. These two things are also a step to form or make a solid work team in the organization. Strong and effective organizations are built from leadership that is able to make the people they lead empowered and have harmonious communication (Baidi et al., 2020; Rahmi et al., 2019).

## CONCLUSION

From the description above, from this research it can be concluded as follows.

1. In the context of the case studied, that in the schools studied there are weaknesses in leadership, and subordinates tend to like the approach of friendship and take orders. The best solution for some school members who always feel in their comfort zone is to provide additional responsibilities that are shared collectively and require cooperation.
2. That the intelligence machine owned by each individual in the school is able to identify potential conflicts within the organization, including in the formation of effective work teams.
3. The use of the Genetic STIFIn concept of machine intelligence and personality types is a unique and different thing that provides a new horizon for management science and the world of research. Sure, hope this research can lead and inspire the birth of new research in various fields using Genetic STIFIn as approaches and methods

### Advice

From the research results can be used by the principal in all levels of education units to improve the management of school work teams each. For the Head of the Education Office, it can also be used in placing prospective school principals in the right and suitable schools so that they can be more effective in managing schools.

## REFERENCES

- 1) Andayani, D. (2007). *Analisis Faktor-Faktor yang Mempengaruhi Produktivitas Tenaga Kerja di Sumatera Utara*. Universitas Sumatera Utara.
- 2) Ariawati, N. P. D. (2015). Analisis Iklim Komunikasi Organisasi (Studi Kasus Pada Sri Hotel Badung). *Jurnal Jurusan Pendidikan Ekonomi (JJPE)*, 5(1), 1–11. <https://media.neliti.com/media/publications/5406-ID-analisis-iklim-komunikasi-organisasi-studi-kasus-pada-uma-sri-hotel-badung.pdf>

## Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

- 3) Arif, S., Amboingtyas, D., Hasiholan, L. B., & Fathoni, A. (2017). Pengaruh Kompensasi Dan Team Work Terhadap Produktivitas Kerja Karyawan Melalui Loyalitas Karyawan Pada Cv. Mawar Semarang. *Journal of Management Universitas Padjadjaran Bandung*, 3(3).
- 4) Arifin, I., & Gunadi, I. (2017). Leadership of Ece Principal in Growth Character Through STIFIn Method in Kindergarten. *Atlantis Press*, 66(Advances in Social Science, Education and Humanities Research), 295–300. <http://creativecommons.org/licenses/by-nc/4.0/>
- 5) Arizona, R. (2017). Peran Team Work dalam Upaya Meningkatkan Kinerja Karyawan pada PT. Asuransi Sinarmas Cabang Malang. *Jurnal Aplikasi Administrasi*, 20(1), 52–60.
- 6) Bachtiar. (2004). *Manajemen Sumber Daya Manusia*. Iteraksa.
- 7) Baidi, Putra, H. R., & Junaidah. (2020). The Effect of Leadership Style and Work Motivation on Work Productivity for Teachers in All State Junior High Schools of Surakarta. *International Journal of Educational Research*, 8(3D), 67–72. <https://doi.org/10.13189/ujer.2020.081710>
- 8) Baron, R. A., Branscombe, N. R., & Byrne, D. (2008). *Social Psychology* (12th ed.). Pearson Education, Inc.
- 9) Burn, S. M. (2004). *Group: Theory and Practice*. Thomson and Wadsworth.
- 10) De Toro, I., & Tenner, A. (1992). *Total Quality Management: Three Steps to Continuous Improvement*. Addison Wesley.
- 11) Effendy, O. U. (2005). *Ilmu Komunikasi Teori dan Praktek*. Remaja Rosdakarya. <https://pakarkomunikasi.com/faktor-yang-mempengaruhi-komunikasi>
- 12) Hall, J. (1974). Interpersonal Style and the Communication Dilemma: I. Managerial Implications of the Johari Awareness Model. *Human Relations*, 27(4), 381–399. <https://doi.org/10.1177/001872677402700404>
- 13) Handoko, T. H. (2000). *Manajemen* (Edisi 2). BPFE.
- 14) Hardjana, A. (2006). Iklim Organisasi: Lingkungan Kerja Manusiawi. *Jurnal Ilmu Komunikasi*, 3(1), 1–36. <https://pdfs.semanticscholar.org/287f/564bb2ab2de337b1d2df7f7f8a559c02dd78.pdf>
- 15) Hartani, A. (2011). *Manajemen Pendidikan*. LaksBang Pressindo.
- 16) Hellriegel, D., Slocum Jr., J. W., & Woodman, R. (2011). *Organizational Behaviour* (13th Ed). South Western College Publishing.
- 17) Hersey, P., & Blanchard, K. H. (1988). *Management of organizational behavior* (5 ed.). Prentice Hall, Inc.
- 18) Hidayat. (1986). *Teori Efektifitas Dalam Kinerja Karyawan*. Gadjah Mada University Press.
- 19) McLaurin, J. R., & Al Amri, M. B. (2008). Developing An Understanding of Charismatic and Transformational Leadership. *Proceedings of the Academy of Organizational Culture, Communications and Conflict*, 13(2).
- 20) Muhti, A. F. E., Sunaryo, H., & ABS, M. K. (2017). Pengaruh Kerjasama Tim dan Kreativitas terhadap Kinerja Karyawan UD. Agro Inti Sejahtera Jember. *e-Jurnal Riset Manajemen PRODI MANAJEMEN*, 1(1), 114–125.
- 21) Napitupulu, D. S. (2019). Komunikasi Organisasi Pendidikan Islam. *At Ta'dib Jurnal Ilmiah Prodi Pendidikan Agama Islam*, 11(2), 127–136. <http://ejournal.staindirundeng.ac.id/index.php/tadib/article/view/260>
- 22) Poniman, F. (2015). *Penjelasan Hasil Tes STIFIn: The Nine of Genetic Personality*. Yayasan STIFIn.
- 23) Poniman, F. (2018). *Pancarona*. Yayasan STIFIn.
- 24) Poniman, F., & Amalia, N. (2020). A Grand Theory of STIFIn Personality: Basic Function Theory Revis. *International Journal of Psychosocial Rehabilitation*, 710–715. <https://doi.org/10.37200/IJPR/V2415/PR201737>
- 25) Poniman, F., & Andi M, R. (2013). *Konsep Palugada*. STIFIn Institute.
- 26) Rahma, A., & Mas'ud, F. (2016). Pengaruh Penerapan Konsep Team Work dan Budaya Organisasi terhadap Kinerja Perawat (Studi pada Rumah Sakit Umum Daerah Sunan Kalijaga Kabupaten Demak). *Diponegoro Journal of Management*, 5(4), 1–11.
- 27) Rahmi, A., Bafadal, I., Imron, A., & Utaya, S. (2019). The Transformational Leadership of School Principals, Organisational Climate and the Professional Attitudes of Teachers. *International Journal of Innovation, Creativity and Change*. [www.ijicc.net](http://www.ijicc.net), 5(4), 30–46.
- 28) Rivai, V. (2009). *Manajemen Sumber Daya Manusia Untuk Perusahaan*. Raja Grafindo Persada.
- 29) Robbins, S. P., & Judge, T. A. (2008). *Perilaku Organisasi* (D. Angelica, R. Cahyani, & A. Rosyid, Penerj.; Ed. ke-12). Salemba Empat.
- 30) Schermerhorn, J. R. (1996). *Manajemen (Bahasa Indonesia)*. Penerbit Andi.
- 31) Setiyani, S. W. (2012). Membangun Kerjasama Tim (Kelompok). *Jurnal STIE Semarang*, 4(3), 59–65.
- 32) Soekanto, S. (1990). *Sosiologi Suatu Pengantar*. Raja Grafindo Persada.
- 33) Soelaiman. (2007). *Manajemen Kinerja ; Langkah Efektif untuk Membangun, Mengendalikan dan Evaluasi Kerja*. PT. Intermedia Personalia Utama.

## Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

- 34) Sriyono, & Lestari, F. (2013). Pengaruh Teamwork, Kepuasan Kerja, dan Loyalitas Terhadap Produktivitas Pada Perusahaan Jasa. *Prosiding Call for Paper 2013: Bidang Manajemen*, 1–28.
- 35) Sunarto, K. (2000). *Pengantar Sosiologi (Edisi Kedua)*. Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
- 36) Sutrisna, D. (2007). *Komunikasi Bisnis*. Penerbit Andi.
- 37) Tracy, B. (2006). *Pemimpin Sukses* (Suharsono & A. B. Kuswandani, Penerj.; Cetakan Keenam). Penerbit Pustaka Delapatrasa.
- 38) Wahid, S. (2014). Komunikasi pada Lembaga Pendidikan Non-Formal. *Jurnal Ilmu Pendidikan*, 20(1), 107–116.
- 39) West, M. (2002). *Kerjasama yang Efektif* (S. Waluyo, Penerj.; Cetakan ke-5). Penerbit Kanisius.
- 40) Widyadharma, A. P., Ulfatin, N., Utaya, S., & Supriyanto, A. (2020). Situational Leadership with the STIFIn Genetic Intelligence Approach. *Systematic Reviews in Pharmacy*, 11(6), 1409–1419.
- 41) Wisman, Y. (2017). Komunikasi Efektif dalam Dunia Pendidikan. *Jurnal Nomosleca*, 3(2), 646–655. <https://doi.org/10.26905/nomosleca.v3i2.2039>
- 42) Yusuf, M. (2017). *Membangun Hubungan Kerjasama*. Lentera Insan.com. <http://lenterainsan.com/pentingnya-kerjasama-tim-detail-56555>



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## Teacher Perceptions of the Independent Curriculum for Senior High Schools Changed Independent Category Indonesian Language Lessons in Surakarta



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**ABSTRACT:** This research is a qualitative research with a case study strategy. This study aims to determine teachers' perceptions regarding the implementation of the independent curriculum, especially at independent sharing schools. The subjects of this study were Indonesian language teachers and students at SMA Negeri 6 and 7 Surakarta. Data collection techniques in this study include observation, interviews, and document analysis. Researchers used the triangulation method to validate the research results so as to produce findings on teacher perceptions of the independent curriculum. The conclusions obtained in this study are: 1) the teacher's perception from the research above regarding the Independent Curriculum is a curriculum that is "free" for educators in determining learning in the classroom. Although in practice the administrative burden is still much like the previous curriculum. Freedom here, students are given the freedom to determine their learning style and choice of subjects they will study; 2) The terms in the 2013 Curriculum are different from the Independent Curriculum. The material in the Independent Curriculum is more focused and essential, so students are able to explore the material more deeply; 3) the assessment used is different from the 2013 curriculum which emphasizes cognitive, affective, and psychomotor assessments. The independent curriculum contains diagnostic assessments, formative assessments, and summative assessments.

**KEYWORDS:** Teacher perception, independent curriculum, observation report

### I. INTRODUCTION

The Independent Curriculum is a hot issue in education in Indonesia today. The Independent Curriculum has begun to be implemented in Indonesia to replace the previous curriculum, namely the 2013 Curriculum (Nurwiati, 2022; Inayati, 2022). The curriculum itself is a set of programs related to learning in education that are designed, developed, and implemented in order to achieve predetermined educational goals (Chamisijatin & Permana, 2019). A dynamic society, the development of science and technology, as well as changing educational goals make the curriculum also adapt to circumstances, so that the curriculum will continue to experience development and change according to demands and needs.

Like the function of the curriculum, the Independent Curriculum also enhances the previous curriculum (Iskandar, et al., 2023). This curriculum begins with designated schools, namely driving schools that previously participated in selection by the Ministry of Education (Kurniati & Kusumawati, 2022). Driving schools began in the 2021/2022 academic year when the Covid-19 pandemic hit (Rahimah, 2022). In the following year, the driving school's impact on the independent school changed. So that most schools have implemented the Independent Curriculum in the 2022/2023 academic year.

A total of 18,872 schools have been asked to become driving schools that implement the Independent Curriculum (Kemdikbud, 2022). Because the implementation of the Independent Curriculum began during the pandemic, various socialization implementations were carried out online through webinars and technical guidance (Chamidi, et al., 2022).

Actually, the Independent Curriculum was prepared by the government as a learning solution during a pandemic (Sari & Gumiandari, 2022). Armed with blended learning, the Independent Curriculum is used as a solution to overcome learning lost that is being experienced by education in Indonesia (Lukman, 2022).

The government is preparing a strategy to implement this curriculum in stages by dividing it into three categories of schools, namely the categories of independent learning schools, changing independent schools, and sharing independent schools (Alimuddin, 2023). In independent learning schools, namely driving schools, they are the first step in implementing the

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Independent Curriculum. Then, continued with the independent school changed. In this changing independent school, it has entered its second year. So, the reference for an independent school to change is the influence of a driving school. Learning materials and tools are mostly obtained from collaboration with driving schools.

In addition to getting knowledge from driving schools, independent changing category schools must also study the concept of this independent curriculum independently. Schools actively learn more by conducting comparative studies to driving schools that have implemented the Independent Curriculum.

In their understanding, several driving schools have different views. Independent learning also creates differences of opinion among teachers. This difference in views makes teachers' perceptions of the Independent Curriculum vary. For this reason, it is necessary to conduct further research to see teacher perceptions of the Independent Curriculum.

Because the independent school category changes to be the first year in the 2022/2023 academic year, it is necessary to know how teachers perceive the implementation of this independent curriculum. Apart from that, it also reveals the differences between the Independent Curriculum and the 2013 Curriculum, especially in the subject of Indonesian. This will be a benchmark for schools with the same category to be able to respond to changes in the Independent Curriculum.

### **II. METHOD**

This study uses a qualitative approach using a case study strategy. According to Creswell (2016) argued that in qualitative research the involvement of researchers is very important, especially in the case study method. Basically research with this type of case study aims to describe something in more depth.

The research was conducted at SMA Negeri 6 and 7 Surakarta which became the object of research because these SMAs are schools with the same category, namely independent change and have applied the Independent Curriculum for Indonesian subjects. The researcher used a descriptive-qualitative method in analyzing teacher perceptions of the independent curriculum for Indonesian subjects. Data collection techniques used in this study include observation, interviews, and document analysis. Observations were made by observing the learning process in class. Furthermore, in-depth interviews were conducted with two Indonesian language teachers, and four class X students. Meanwhile, document analysis took learning device objects. This research was conducted in November 2022 during class activities. The data that has been collected is then validated using the triangulation method so as to produce findings on teacher perceptions of the independent curriculum.

### **III. RESULT**

Perception in KBBI is defined as a direct response (acceptance) of something. Meanwhile, Anwar (2022) defines perception as a complex cognitive process that produces images that may differ from reality. Perception is also called treatment to collect information from sensory organs that can be understood as a whole (Lusiana, 2017). The teacher's perception is said to be the teacher's experience from an experience gained which is interpreted and concluded in the message (Rozaini, 2016). So, the teacher's perception of the Independent Curriculum is the teacher's view of curriculum planning, implementation and evaluation which focuses on the freedom of teachers and students in developing interests and talents according to the characteristics and learning styles of students.

As the name suggests, namely the Independent Curriculum, from the results of interviews with teachers, they assume that this curriculum is a "free" curriculum. Free here in the sense of "free and not hindered by anything". The teacher's perception of this curriculum is that the curriculum is determined by the educational unit and tends not to have too much administration like the previous curriculum. However, after learning more about the independent curriculum, the independence that is meant is in terms of students being able to determine the choice of subjects they want to study even though they are still directed by the teacher. The initial perception of this independent curriculum, teachers still think it is not much different from the 2013 curriculum. Teachers are still burdened with quite a lot of learning tools.

What's more, when implementing this curriculum, socialization and technical guidance were carried out online and independently. For most teachers, they still experience difficulties in implementing this curriculum. Teachers receive information and implementation of the Independent Curriculum from the Freedom Teaching Platform (PMM). The school principal requires teachers to complete the lessons learned at PMM by monitoring with the MGMP and checklists that have been prepared by the curriculum section. The form of control from schools regarding teacher readiness for the new curriculum can be seen by how many percent of teachers complete activities in PMM. The PMM application has a big role in the teacher's understanding of the Independent Curriculum.

In the 2013 Curriculum, teachers are familiar with learning tools such as Core Competencies (KI), Basic Competencies (KD), syllabus, and Learning Process Plans (RPP) (Pratiwi, et al., 2022). After the teacher has studied the Independent Curriculum both



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independently and in workshops held by schools, the teacher understands the form of learning tools changing terms such as Learning Outcomes (CP) which are equivalent to KI and KD, Learning Objectives Flow (ATP) which is equivalent to the syllabus and RPP which are equivalent to the Teaching Module. The difference is certainly in a more complete systematics.

RPP components include (1) learning identity; (2) Learning Themes/Sub Themes; (3) Competency Standards/Core Competencies/Stages of achievement of development; (4) Basic Competency; (5) Indicators; (6) Learning objectives; (7) Subject matter; (8) Method; (9) learning activities; (10) Learning Media/Tools, Materials and Resources; and (11) Assessment of learning outcomes (Employee Pusdiklat Team, 2016). For the Independent Curriculum, the teaching module components include three important components, (1) general information (school identity, initial competencies, Pancasila student profiles, facilities and infrastructure, target students, and the learning model used); (2) core components (learning objectives, meaningful understanding, triggering questions, learning activities; assessment, enrichment and remedial); and (3) attachments (student worksheets, teacher and student reading materials, glossary, and bibliography), (Ministry of Education and Culture, 2021).

From the description above, it can be seen the difference with the 2013 curriculum, the material in the Independent Curriculum is more essential and less. Teachers have the flexibility to choose various teaching tools so that learning can be adapted to the learning needs and interests of students (Berlian, et al., 2022). Even though the Independent Curriculum is more essential, it can be seen in the teaching module documents that this curriculum is more numerous and more complex. In line with the results of interviews with teachers, learning tools are still burdened with quite a lot of teaching tools. Previously, in the 2013 Curriculum, teachers had used learning tools, especially lesson plans with one lesson plan sheet (Ndiung & Menggo, 2021) to ease the teacher's administrative burden.

The Indonesian material, especially for class X SMA/MA or SMK/MAK in the 2013 Curriculum includes: (1) Observation Reports; (2) Exposition; (3) Anecdotes; (4) Folklore; (5) Negotiation; (6) Arguing; (7) Biography; and (8) Poetry (Suherli, et al) using a textbook written by Suherli, et al with the title Bahasa Indonesia. Meanwhile, the Independent Curriculum consists of: (1) Observation Reports; (2) Social Criticism; (3) Saga; (4) Negotiation; (5) Biography; and (6) Poetry (Aulia & Gumilar, 2021) uses a textbook written by Aulia & Gumilar entitled Cerdas Cergas Berbahasa dan Bersastra Indonesia untuk SMA/SMK Kelas X. Both books are mandatory textbooks used throughout Indonesia. It can be seen from the amount of material used for the 2013 Curriculum, there are eight main materials, while in the Independent Curriculum there are six main materials. The difference in the amount of material is enough to affect the number of hours in class. The difference between the two subject matter of the Independent Curriculum is used for student learning experiences through project-based learning that produces products. These products will later be exhibited at the exhibition of works that have become the Independent Curriculum program.

The learning method approach is also different, for the 2013 Curriculum using a scientific approach, while the Independent Curriculum uses a project-based method approach.

The assessments used in the 2013 Curriculum are cognitive, affective, and psychomotor (Ayuni, et al., 2022). Teachers still think that the independent curriculum is still assessed by dividing it into these three categories. In the 2013 Curriculum, the results of the report cards that appear are divided into two values, namely the value of knowledge and skills. Meanwhile, in the independent curriculum, the assessments used are diagnostic, cognitive, and non-cognitive assessments. The results that come out on the report card have been combined into one value with the average of the three categories.

Teachers are still groping (Melani, et al., 2023) with the diagnostic assessments that must be learned in this curriculum. Diagnostic assessment is an initial assessment (Rachmawati, et al., 2022) that teachers use to determine how students learn according to their character. Mapping the strengths and weaknesses of students can be seen from the results of a diagnostic assessment which can be used as a reference when determining student indicators when designing formative and summative assessments (Rachmawati, et al., 2022). This learning style diagnostic assessment activity aims to help students and teachers identify learning styles that should be a reference in learning both at school and at home and teachers can easily compile teaching materials and apply methods according to the learning styles of their students (Jatmiko & Putra, 2022). The diagnostic assessment consists of groups of students using visual, auditory, and kinesthetic learning methods (Ekaningtiass, et al., 2023). Visual, that is, students are presented in a way of learning through the media of images. While the auditory learning method, students are presented with learning media through sound/audio. Furthermore, kinesthetic learning methods use learning media through movement.

This grouping of learning methods is still carried out in general, such as only apperception activities in the 2013 Curriculum. In fact, diagnostic assessment is more than that. Diagnostic assessment can determine the learning method to be used in one class. It is possible that in one class there are different methods adapted to the learning interests of each student. Types of cognitive and non-cognitive assessments are also adapted to their learning styles. So, this is what is called independent learning. Students get learning according to their respective learning styles.

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Furthermore, the following table presents the differences between the 2013 Curriculum and the Independent Curriculum.

**Table 1: Differences between the 2013 Curriculum and the Independent Curriculum for Class X Indonesian Subjects**

Category	2013 Curriculum	Independent Curriculum
Learning Media	KI & KD, Syllabus, & RPP	CP, ATP, & Teaching Module
Lesson Components	Plan 1. Learning identity 2. Learning Themes/Sub Themes 3. Competency Standards/Core Competencies/Stages of achievement of development 4. Basic Competency 5. Indicators 6. Learning objectives 7. Subject matter 8. Method 9. Learning activities 10. Media/Tools, Learning Materials and Resources 11. Assessment of learning outcomes.	1. general information a. school ID, b. initial competency, c. Pancasila student profile d. facilities and infrastructure, e. student targets, f. the learning model used 2. core components a. learning objectives, b. meaningful understanding, c. lighter question, d. Learning Activities; e. assessment, f. enrichment and remedies 3. Attachments a. student worksheets, b. teacher and student reading materials, c. glossary, and d. bibliography
Subject matter	8 subject	6 subject
Textbook	<i>Bahasa Indonesia</i> (Suherli, dkk.)	<i>Cerdas Cergas Berbahasa dan Bersastra Indonesia untuk SMA/SMK Kelas X</i> (Aulia & Gumilar, 2021)
Approach	Scientific	Project
Assessment	Cognitive, Affective, & Psychomotor	Diagnostic, cognitive and non-cognitive

Learning in the 2013 Curriculum which focuses activities on students (Susdiana, et al., 2018) is still maintained in the Independent Curriculum (Kurniati, et al., 2022). Students are learning centers and teachers are facilitators (Lince, 2022). Learning in the Independent curriculum places more emphasis on project-based learning (Nisa, et al., 2023) which can actually be practiced and utilized for the lives of students in their environment. For this reason, the material taught is less and essential (Rosmana, et al., 2023) and emphasizes the projects they will make.

At the advanced level, student learning independence is also evidenced by the selection of their interests and talents. The 2013 curriculum still groups majors into MIPA, IPS, or Bahasa. Unlike the Independent Curriculum, students can choose subject classes according to their interests and talents. For teachers, it is still inconceivable how the Independent Curriculum will work at an advanced level. What are the strategies that will be used to deal with the Independent Curriculum at the advanced level or class XI phase F.

#### IV. CONCLUSIONS

The teacher's perception from the research above regarding the Independent Curriculum is a curriculum that is "free" for educators in determining learning in the classroom. Although in practice the administrative burden is still much like the previous curriculum. Freedom here, students are given the freedom to determine their learning style and choice of subjects they will study.

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The terms in the 2013 Curriculum are different from the Independent Curriculum. The material in the Independent Curriculum is more focused and essential, so students are able to explore the material more deeply. Learning tools, especially Indonesian language material, also experience differences with denser material, from 8 teaching materials to 6 teaching materials. The assessment used is different from the 2013 curriculum which emphasizes cognitive, affective and psychomotor assessments. The independent curriculum contains diagnostic assessments, formative assessments, and summative assessments.

### ACKNOWLEDGMENT

Thank you to the Head of Indonesian Language Education Postgraduate Study Program, Sebelas Maret University, and supervisors who have contributed in completing this research. For student and teacher respondents at SMA Negeri 6 and 7 Surakarta who also provided support to the author in completing this article.

### REFERENCES

- 1) Anwar, R. N. (2022). Persepsi Guru PAUD Terhadap Pembelajaran Paradigma Baru Melalui Kurikulum Merdeka. *Azzahra: Jurnal Pendidikan Anak Usia Dini*, 3(2), 98-109. Retrieved from <http://ejournal.staidarussalamlampung.ac.id/index.php/azzahra/article/view/384>
- 2) Alimuddin, J. (2023). Implementasi Kurikulum Merdeka di Sekolah Dasar. *Jurnal Ilmiah Kontekstual*, 4(02), 67–75. <https://doi.org/10.46772/kontekstual.v4i02.995>
- 3) Aulia, F. T. & Gumilar, S. I. (2021). *Cerdas Cergas Berbahasa dan Bersastra Indonesia untuk SMA/SMK Kelas X*. Jakarta: Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.
- 4) Ayuni, F., Purba, A. & Akhyaruddin, A. (2022). Penerapan Asesmen Autentik Materi Menulis Teks Anekdote Kelas X SMA. *Jurnal Onoma: Pendidikan, Bahasa, Dan Sastra*, 8(1), 417-428. <https://doi.org/10.30605/onoma.v8i1.1763>
- 5) Barlian, U. C., Solekah, S., & Rahayu, P. (2022). Implementasi Kurikulum Merdeka dalam Meningkatkan Mutu Pendidikan. *Joel: Journal of Educational and Language Research*, 1(12), 2105–2118. Retrieved from <https://bajangjournal.com/index.php/JOEL/article/view/3015>
- 6) Chamidi, A. S., dkk. (2022). Penguatan Implementasi Kurikulum Merdeka di Sekolah/Madrasah melalui Bimtek Model In-On-In. *Jurnal Pengabdian Masyarakat: Dikmas Volume 02*, (4), Desember 2022 1267-1276 <http://dx.doi.org/10.37905/dikmas.2.4.1267-1276.2022>
- 7) Chamisijatin, L. & Permana, F. H. (2019). *Telaah Kurikulum*. Malang: UMMPress.
- 8) Ekaningtiass, P., Fitriani, H., Nurudin, M., & Akhadiyah, S. (2023). Pengembangan Media Pembelajaran Berdiferensiasi Berbasis Teknologi pada Materi Teks Prosedur untuk Siswa Kelas VII SMP. *Journal on Education*, 6(1), 841-847. <https://doi.org/10.31004/joe.v6i1.3000>
- 9) Inayati, U. (2022). Konsep dan Implementasi Kurikulum Merdeka pada Masa Pembelajaran Abad-21 di SD/MI. 2st ICIE: International Conference on Islamic Education Volume 2 2022 (PP. 293-304) <http://proceeding.iainkudus.ac.id/index.php/ICIE>
- 10) Iskandar, S., Rosmana, P. S., Nisa, F. F., Nisrina, F. A., Oktaviani, O., & Realistiya, R. (2023). Penggunaan Platform Merdeka Mengajar Sebagai Sarana Guru Dalam Pemahaman Kurikulum Merdeka. *Innovative: Journal Of Social Science Research*, 3(2), 1301–1306. <https://doi.org/10.31004/innovative.v3i2.427>
- 11) Jatmiko, H. T. P. & Putra, R. S. (2022). Refleksi Diri Guru Bahasa Indonesia dalam Pembelajaran Berdiferensiasi Di Sekolah Penggerak. *Beranda / Vol 6, No 2 (2022)* <http://dx.doi.org/10.30651/lf.v6i2.14701>
- 12) Kamus Besar Bahasa Indonesia. <https://kbbi.kemdikbud.go.id/entri/persepsi>
- 13) Kementerian Pendidikan dan Kebudayaan. 2022. *Konsep Komponen Modul Ajar*.
- 14) Kurniati, L., & Kusumawati, R. (2022). “Efektivitas Pembelajaran Matematika SMP Dengan Kurikulum Merdeka: Studi Kasus Sekolah Penggerak Kab. Demak Angkatan I.” In *Pembelajaran Matematika Dalam Menyongsong Kurikulum Merdeka*, 89–98. Surabaya: Adi Buana University Press, 2022. <http://snpm.unipasby.ac.id/wp-content/uploads/2022/09/PROSIDING-SNPM-2022-FIX-unggah-web-1.pdf#>.
- 15) Kurniati, P., Kelmaskouw, A. L., Deing, A., Bonin, Haryanto, B. A. (2022). Model Proses Inovasi Kurikulum Merdeka Implikasinya Bagi Siswa dan Guru Abad 21. *Jurnal Citizenship Virtues*, 2022, 2(2), 408-423 ISSN 2775-9946. DOI: <https://doi.org/10.37640/jcv.v2i2.1516>
- 16) Lince, L. (2022). Implementasi Kurikulum Merdeka untuk Meningkatkan Motivasi Belajar pada Sekolah Menengah Kejuruan Pusat Keunggulan. Vol 1 (2022): Volume 1 Tahun 2022. *Prosiding Seminar Nasional Fakultas Tarbiyah dan Ilmu Keguruan (FTIK) Institut Agama Islam Muhammadiyah (IAIM) Sinjai*. <https://doi.org/10.47435/sentikjar.v1i0.829>

## Teacher Perceptions of the Independent Curriculum for Senior High Schools Changed Independent Category Indonesian Language Lessons in Surakarta

- 17) Lukman. 2022. Flashback Implementasi Kurikulum pada Masa Covid-19 untuk Mengungkap Tantangan dan Peluang menghadapi Pembelajaran di Era Kurikulum Merdeka. *Jurnal Ilmiah Mandala Education (JIME)* Vol. 8, No. 2, April 2022 p-ISSN: 2442-9511, e-2656-5862 DOI: 10.36312/jime.v8i2.3302/<http://ejournal.mandalanursa.org/index.php/JIME> 1726
- 18) Lusiana. N. P. M. (2019). "Pengaruh Persepsi Guru Tentang Kepemimpinan Kepala Sekolah Terhadap Kinerja Guru Di Sma Laboratorium Undiksha Singaraja Tahun Pelajaran 2017," *Jurnal Pendidikan Ekonomi Undiksha*10, no. 2 (2019): 440, <https://doi.org/10.23887/jjpe.v10i2.20076>.
- 19) Melani, A., & Gani, E. (2023). Implementasi Kurikulum Merdeka dalam Pembelajaran Bahasa Indonesia di SMP Negeri 16 Padang. *Educaniora: Journal of Education and Humanities*, 1(2), 23–32. <https://doi.org/10.59687/educaniora.v1i2.28>
- 20) Ndiung, S. & Menggo, S. (2022). Pelatihan Penyusunan Rpp Merdeka Belajar bagi Guru SDN Ules Kabupaten Manggarai Barat. *Jurnal Pengabdian Masyarakat: ADIMAS*. Vol 5, No 1 (2021). DOI: 10.24269/adi.v5i1.2674
- 21) Nisa, R. A., Minarti, I. B., Mulyaningrum, E. R., & Sudaryati, S. (2023). Keterkaitan Model Pembelajaran Project Based Learning dengan Proyek Penguatan Profil Pelajar Pancasila SMPN 37 Semarang. *Jurnal Pendidikan Tambusai*, 7(2), 4380–4385. Retrieved from <https://www.jptam.org/index.php/jptam/article/view/6406>
- 22) Nurwiati, N. (2022). Pengaruh Pengembangan Kurikulum Merdeka Belajar dan Kesiapan Kepala Sekolah terhadap Penyesuaian Pembelajaran Di Sekolah. *Edsuintek: Jurnal Pendidikan, Sains Dan Teknologi*, 9(2), 472-487. <https://doi.org/10.47668/edusaintek.v9i2.537>
- 23) Pratiwi, A. Y., Pristiwati, R. & Doyin, M. (2022). Analisis Keselarasan Komponen-Komponen RPP Kurikulum 2013 Kelas 1 Mata Pelajaran Bahasa Indonesia. *Jurnal Profesi Keguruan*. JPK 8 (1), 2022: 54-66. <https://journal.unnes.ac.id/nju/index.php/jpk>
- 24) Rachmawati, A., & Lestarinigrum, A. (2022). Penerapan Model Pembelajaran Inovatif Melalui Asesmen Diagnostik Dalam Menguatkan Literasi Anak Kelas 1 di SDN Banjaran 5. *Prosiding SEMDIKJAR (Seminar Nasional Pendidikan Dan Pembelajaran)*, 5, 891–898. Retrieved from <https://proceeding.unpkediri.ac.id/index.php/semdikjar/article/view/2408>
- 25) Rachmawati, N., Marini, A., Nafiah, M., & Nurasih, I. (2022). Proyek Penguatan Profil Pelajar Pancasila dalam Impelementasi Kurikulum Prototipe di Sekolah Penggerak Jenjang Sekolah Dasar. Vol 6, No 3 (2022). DOI: <https://doi.org/10.31004/basicedu.v6i3.2714>
- 26) Rahimah. (2022). Peningkatan Kemampuan Guru SMP Negeri 10 Kota Tebingtinggi Dalam Menyusun Modul Ajar Kurikulum Merdeka Melalui Kegiatan Pendampingan Tahun Ajaran 2021/2022. *Ansiru PAI: Vol 6, No 1 (2022)* 92-106 <http://dx.doi.org/10.30821/ansiru.v6i1.12537>
- 27) Rosmana, P. S., Iskandar, S., Rahmadika, F. S. ., Fadila, I. ., Aghniyah, I. A. ., & Salsabila, R. A. . (2023). Efektivitas Penerapan Kurikulum Merdeka pada Jenjang Kelas 4 di SDN 2 Sindangkasih. *Jurnal Pendidikan Tambusai*, 7(2), 5757–5768. Retrieved from <https://mail.jptam.org/index.php/jptam/article/view/6610>
- 28) Rozaini, N. (2016). "Persepsi Siswa Tentang Ekonomi Syariah Dan Hubungannya Dengan Minat Mempelajari Ekonomi Syariah," *Ekonomikawan: Jurnal Ilmu Ekonomi dan Studi Pembangunan*16, no. 2 (2016): 124–33, <https://doi.org/10.30596/ekonomikawan.v16i2.940>.
- 29) Sari, I., & Gumiandari, S. (2022). Implementasi Kurikulum Merdeka Belajar Pasca Pembelajaran Daring Di SMKN 2 Cirebon. *Journal of Education and Culture (JEC)*, 2(3), 1–11. <https://doi.org/10.58707/jec.v2i3.267>
- 30) Suherli, M. S., Septiaji, A. & Istiqomah. (2017). *Bahasa Indonesia / Kementerian Pendidikan dan Kebudayaan (Edisi Revisi)*. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- 31) Susdiana, B. E., Hanafi, N., & Sudirman, S. (2018). Implementasi Kurikulum 2013 Pada Pembelajaran Bahasa Indonesia Di SMA Di Lombok Tengah. *Lingua: Jurnal Bahasa, Sastra, Dan Pengajarannya*, 15(2), 207-224. <https://doi.org/10.30957/lingua.v15i2.527>
- 32) Tim Pusdiklat Pegawai. (2016). *Pendidikan dan Pelatihan Teknis Kegiatan Belajar Mengajar Bagi Pamong Belajar Modul 03. Pengembangan Silabus dan Penyusunan Rencana Pelaksanaan Pembelajaran*. Depok: Pusdiklat Pegawai Kemendikbud.



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## The Effect of Bitter Melon Extract (*Momordica Charantia*) On CASPASE-9 and Bcl-2 Proteins Expression



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**ABSTRACT:** Breast cancer has a significant morbidity and death rate worldwide, thus various therapeutic strategies, including the phytopharmaca approach, must be researched further. Bitter melon (*Momordica charantia*) extract is predicted to have anti-cancer properties due to its influence on *Caspase-9* and Bcl2 proteins, which will be shown in this in vitro investigation utilizing MCF-7 cell culture. This study was an in vitro laboratory experimental study with a post-test-only control group design. The doses of *Momordica charantia* extract used were 125 µg/ml, 500 µg/ml, and 1,000 µg/ml. *Caspase-9* and Bcl2 protein expression in MCF-7 cell culture was measured by immunocytochemistry method, *Shapiro Wilk*, *Levene Test*, *One Way Anova*, and *Post Hoc LSD*. Administration of *Momordica charantia* extract at a dose of 500 µg/ml and 1,000 µg/ml significantly increased the average expression of *Caspase-9* protein ( $p = 0.044$  and  $p = 0.004$  respectively), but not at a dose of 125 µg/ml ( $p = 0.125$ ). Administration of bitter melon extract at doses of 125 µg/ml, 500 µg/ml, and 1,000 µg/ml significantly reduced the average Bcl2 protein expression ( $p < 0.001$ ,  $p < 0.001$ , and  $p = 0.001$  respectively). *Momordica charantia* extract has the potential to be employed as an anti-breast cancer agent due to its ability to increase the average expression of *Caspase-9* protein while reducing the average expression of Bcl2 protein.

**KEYWORDS:** Breast cancer, CASPASE-9, Bcl-2, bitter melon

### I. INTRODUCTION

Cancer is a degenerative disease that grows continuously without control and has the ability to metastasize to other organs. Breast cancer is a disease with a poor prognosis, often found at an advanced stage, and can lead to death.<sup>1</sup> In 2020, breast cancer patients in Indonesia amounted to 65,856 cases with the number of deaths due to this cancer of 22,430 cases.<sup>2</sup>

The high mortality of breast cancer encourages the need to investigate effective therapies, both anti-cancer drug therapy (chemotherapy) and phytopharmaceuticals.<sup>3</sup> One phytopharmaceutical method that is suspected to be effective for cancer treatment is bitter melon extract.<sup>4</sup> Bitter melon extract has anti-carcinogenic properties and has many benefits pharmacologically, Bitter melon extract also contains various bioactive components.<sup>4,5</sup> Components include saponins, flavonoids, alkaloids, and triterpenoids that are toxic. Therefore, bitter melon extract can be used as a phytopharmaceutical agent for breast cancer treatment.<sup>5</sup>

Bitter melon extract has cytotoxic potential and is carcinogenic. In previous studies, the IC<sub>50</sub> value of 10.92 µg/ml in bitter melon extract has the potential to fight breast cancer cells.<sup>6</sup> The half maximal inhibitory concentration or IC<sub>50</sub> measures the potential of a substance to inhibit certain biological or biochemical functions. An IC<sub>50</sub> value is a quantitative measure that indicates how much of a particular inhibitory substance (e.g. a drug) is required to inhibit a certain biological process or biological component by 50% in vitro. This value is commonly used as a measure of the potential of antagonistic drugs in pharmacological research.<sup>7</sup> Specialized in pharmacological research on breast cancer, Michigan Cancer Foundation-7 (MCF-7) cells are the most commonly used model of breast cancer cells for in vitro methods.

Michigan Cancer Foundation-7 (MCF-7) cells are monolayer-grown epithelial cells of the best shape compared to all types of human breast cancer cells.<sup>8</sup> This cell is also able to synthesize various proteins like cancer cells in humans, including CASPASE-9 and Bcl-2 proteins. CASPASE-9 protein can accelerate the apoptosis process, and an increase in Bcl-2 levels can inhibit the process of apoptosis.<sup>9</sup> In normal cells, apoptosis depends on the balance between proteins that act as activators and inhibitors of

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apoptosis. Many signal transduction pathways play a role in the process of apoptosis, including intrinsic and extrinsic factors, through mitochondrial pathways and apoptosis receptors. Proteins such as p53, Bcl-2, Bax, and CASPASE, greatly affect the process of apoptosis.<sup>9</sup>

Based on the description above, it can be seen that breast cancer is a health problem that is very important to pay attention to because it has a high morbidity and mortality rate. Various to treat this condition need to be further researched, including complementary therapy in phytopharmaceuticals. Bitter gourd extract is one of the plants reported to have a good toxic effect against breast cancer cells. However, previous studies have never been conducted to assess its effectiveness using CASPASE-9 and Bcl-2 protein expression parameters in MCF-7 breast cancer cell cultures. This is what makes this research important to do.

### II. MATERIAL AND METHOD

#### Material

This type of research is experimental. The research design that fits this problem is a post-test-only control group design of MCF-7 breast cancer cells. Samples were obtained from the culture storage area at the Parasitology Laboratory of Gajah Mada University.

#### Methods

MCF-7 cells are divided into four treatments. The treatment consisted of a control group, the treatment group which was given bitter melon extract at a dose of 1/2 IC50, 1 IC50, and 2 IC50. The research was conducted in the Parasitology laboratory of the Faculty of Medicine, Gadjah Mada University, Yogyakarta. The study was conducted from February 13 to February 24, 2023

### III. RESULT

This study used MCF-7 cells as a research sample. MCF-7 cells were divided into 4 groups, cell control group, P1 MCF-7 treated with bitter melon extract dose 1/2 IC50 (250 µg/ml) P2 MCF-7 treated with bitter melon extract dose 1 IC50 (500 µg/ml), and P3 MCF-7 treated with bitter melon extract dose 2 IC50 (1000 µg/ml) The bitter melon extract used in this study was extracted by maceration method using 90% ethanol solvent for 72 hours.

**Table 1. Results of Average Analysis, Normality Test, Homogeneity Test on TNF-α and MCP-1 Expression**

Variable	Group				Sig.
	Control	P1 Bitter Melon Extract ½ IC50	P2 Bitter Melon Extract 1 IC50	P3 Bitter Melon Extract 2 IC50	
<b>CASPASE-9 Expression</b>					
Mean	3,98	7,66	9,15	12,91	
Std. deviation	2,05	0,89	1,73	1,27	
<i>Shapiro Wilk</i>	0,474	0,501	0,482	0,505	>0,05*
<i>Levene test</i>					0,405**
<i>One-way ANOVA</i>					0,022***
<b>Bcl-2 Expression</b>					
Mean	13,66	4,16	2,56	2,38	
Std. deviation	0,33	1,39	1,59	1,48	
<i>Shapiro Wilk</i>	0,848	0,531	0,778	0,774	>0,05*
<i>Levene test</i>					0,324**
<i>One-way ANOVA</i>					0,001***

\*Saphiro Wilk test (p > 0,05 = normal)

\*\* Levene's Test (p > 0,05 = homogeneous)

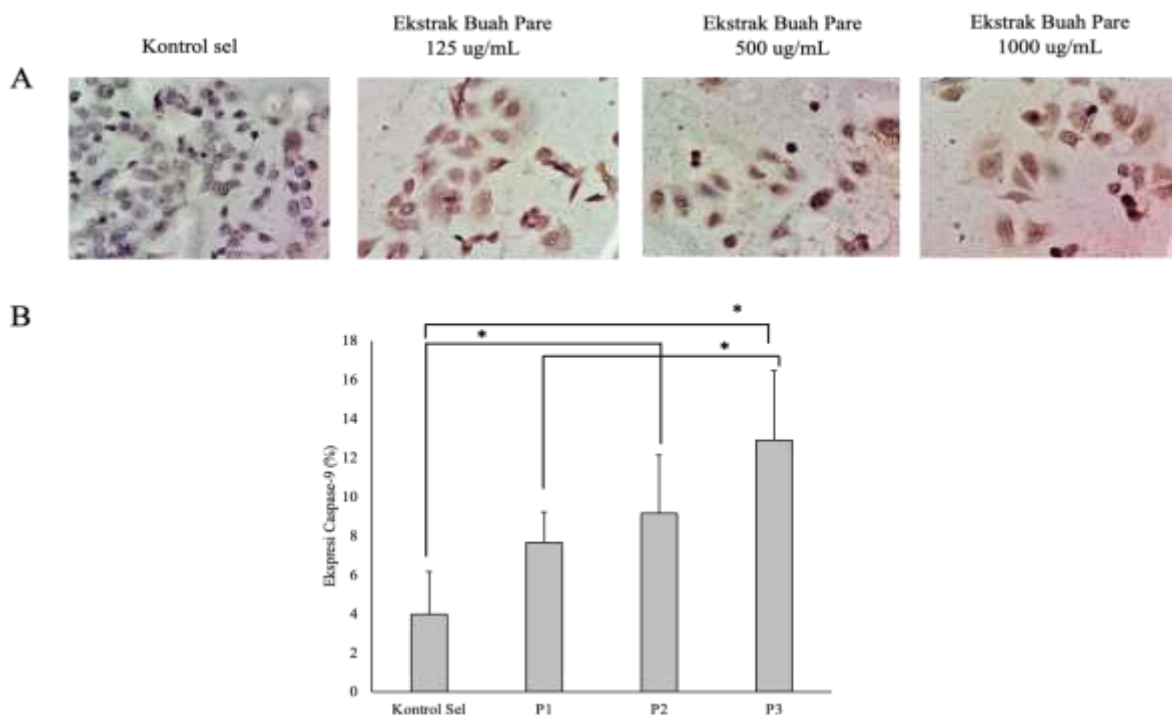
\*\*\* One Way Anova (p < 0,05 = difference)

## The Effect of Bitter Melon Extract (*Momordica Charantia*) On CASPASE-9 and Bcl-2 Proteins Expression

Based on the results of the study shown in Table 1. The average expression of Bcl2 protein in the lowest P3 group was then followed by the average expression of Bcl2 protein in group P2 and subsequently group P1. Shapiro Wilk test results obtained  $p > 0.05$  values and Levene's Test results with  $p = 0.324$  ( $p > 0.05$ ) values. The distribution and variance of the data on the expression of Bcl-2 are normal and homogeneous, then the One Way Anova test produces a value of  $p = 0.001$  ( $p < 0.05$ ) so that it is stated that there is a significant difference in the mean expression of Bcl-2 between the four groups. Significant One Way Anova test results followed by Post Hoc test.

### The Effect of Bitter Melon on CASPASE-9 Expression

The Effect of Giving Bitter Melon Extract on CASPASE-9 Protein Expression The results showed that the average expression of CASPASE-9 protein in the P3 group was the highest, followed by the average expression of CASPASE-9 group P2 and subsequently group P1. The CASPASE-9 expression data of the four groups were all normally distributed, indicated by Shapiro Wilk's results obtained  $p > 0.05$  values and also had homogeneous data variants shown by the results of Levene's Test with a value of  $p = 0.405$  ( $p > 0.05$ ), then a One Way Anova test was carried out which obtained a value of  $p = 0.022$  ( $p < 0.05$ ) which means that there was a significant difference in the average expression of CASPASE-9 protein between the four groups. Post Hoc Results were conducted.



**Figure 1.** Effect of bitter melon extract on Caspase-9 protein expression in MCF-7 cells. A. CASPASE-9 expression using ICC, B. the percentage graph of CASPASE-9 expression.

The effect of bitter melon extract on CASPASE-9 protein expression in MCF-7 cells during 24-hour treatment (Figure 1). The visualization of CASPASE-9 expression was observed by the immunocytochemistry (ICC) method and the Percentage graph of CASPASE-9 expression after being treated with bitter gourd extract on MCF-7 cells for 24 hours. Protein expression profiles were presented from 5 experiments.

**Table 2.** LSD Post Hoc test result on CASPASE-9 expression between group

Group	Comparison Group	Sig.
Control	P1	0,125
	P2*	0,044
	P3*	0,004
P1	P2	0,516
	P3*	0,046
P2	P3	0,132

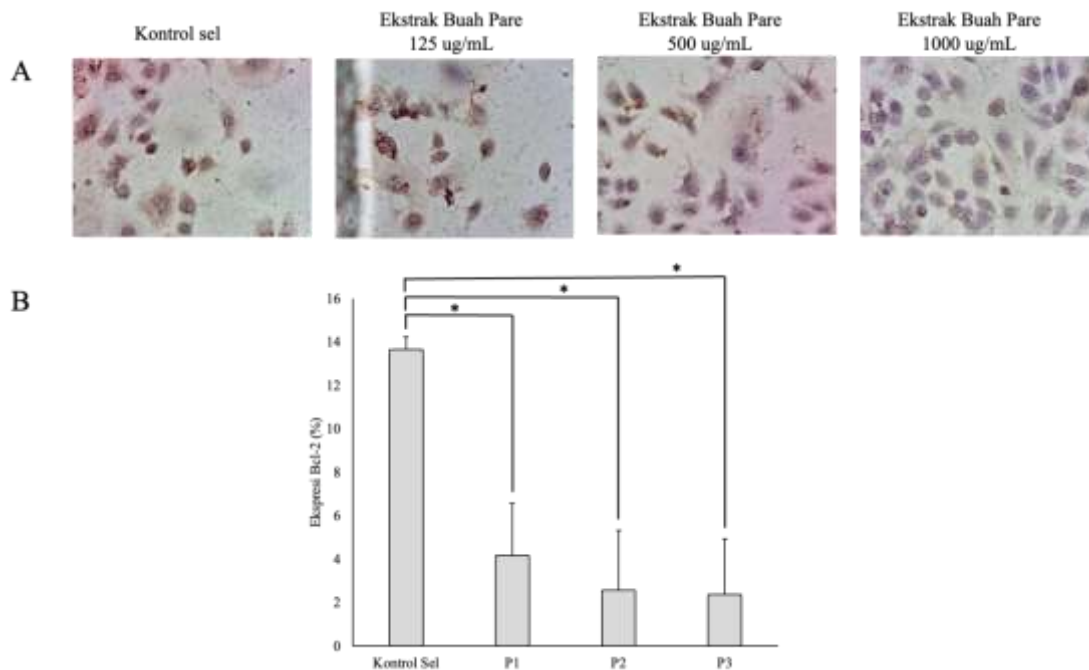
\* sign indicates a significantly different group.

## The Effect of Bitter Melon Extract (*Momordica Charantia*) On CASPASE-9 and Bcl-2 Proteins Expression

Based on the data in Table 2, it was found that the average cell control and P2 ( $p=0.044$ ) were different meaning, that cell control with P3 ( $p=0.004$ ) was also significantly different, while cell control and P1 ( $p=0.125$ ) were not significantly different. CASPASE-9 protein expression between P1 and P3 differs significantly ( $p=0.046$ ). Post Hoc LSD test results on CASPASE-9 protein expression showed that giving bitter gourd extract at doses of 1/2,1, and 2 IC50 can increase CASPASE-9 protein expression in MCF-7 breast cancer cells.

### The Effect of Bitter Melon Extract on Bcl-2 Protein Expression

In this study, the Bcl2 protein expression test was selected at 3 doses according to the IC50 results, namely 1/2 IC50, 1 IC50, and 2 IC50.



**Figure 2. Effect of bitter gourd extract on Bcl2 protein expression in MCF- 7 cells. (A) Bcl-2 expression images observed by the ICC method, (B) The percentage graph of Bcl-2 expression after being treated with bitter gourd extract on MCF-7 cells.**

Figure 2 shows the effect of bitter melon extract on Bcl-2 protein expression in MCF- 7 cells during 24 h treatment. The Bcl-2 expression images were observed by the ICC method and the percentage graph of Bcl-2 expression after being treated with bitter melon extract on MCF-7 cells for 24 hours. Protein expression profiles were presented from 5 experiments.

**Table 3. The Post Hoc LSD test result on Bcl-2 expression between group**

Group	Comparison Group	Sig.
Cell Control	P1*	0,000
	P2*	0,000
	P3*	0,001
P1	P2	0,412
	P3	0,363
P2	P3	0,925

\* sign indicates a significantly different group

There was a significant difference between the cell control and P1 groups ( $p=0.000$ ). Among the cell control group with the P2 group ( $p=0.000$ ) and between the cell control group with the P3 group ( $p=0.001$ ) there were meaningful differences with successive p values ( $p=0.000$ ), ( $p=0.000$ ), ( $p=0.001$ ). Post Hoc LSD test results on Bcl2 protein expression data showed that there were significant differences in the administration of bitter melon extract between the control group and the treatment group.



## The Effect of Bitter Melon Extract (*Momordica Charantia*) On CASPASE-9 and Bcl-2 Proteins Expression

### IV. DISCUSSION

Breast cancer cells are the most common population of cancer cells found in the world with a therapeutic resistance incidence rate of up to 78%.<sup>46</sup> Induction of apoptosis is a strategy for killing cancer cells, including breast cancer cells.

<sup>47</sup> Recent research reveals MCF-7 cancer cells have the ability to protect themselves from apoptosis programs by increasing the expression of anti-apoptosis proteins such as Bcl-2 and suppressing the expression of pro-apoptosis proteins such as CASPASE-9.<sup>48,49</sup> The breast cancer cells in this study came from MCF-7 breast cancer cells. MCF-7 breast cancer cells have the characteristics of PgP overexpression, and Bcl-2 overexpression, and do not express Caspase-3 so as to avoid apoptosis.<sup>50</sup> MCF-7 cell resistance to chemotherapy through the efflux pump mechanism on the cell membrane causing failure of apoptosis initiation.<sup>48,51</sup>

The concentration of each dose of bitter gourd extract used in the cytotoxic test was 7.8125 ug/mL, 15.625 ug/mL, 31.25 ug/mL, 62.5 ug/mL, 125 ug/mL, 250 ug/mL, 500 ug/mL and 1000 ug/mL. The results showed that bitter gourd extract is cytotoxic with dose-dependent patterns (Figure 5.1). The pattern of cell growth will decrease with the increase in dose. The results of cytotoxic tests on MCF-7 cells obtained an IC<sub>50</sub> value of 495.885 ug / mL. This value will be used in research on the effect of bitter gourd extract on the expression of Caspase-9 and Bcl2 proteins at doses of 1/2 IC<sub>50</sub>, 1 IC<sub>50</sub>, and 2 IC<sub>50</sub>. These cytotoxic results illustrate that bitter gourd extract decreases the growth of MCF-7 cells. The mechanism of inhibition of MCF-7 cell growth can occur through the induction of apoptosis. These results are supported by previous studies that reported that bitter gourd extract has a cytotoxic effect on MCF-7 cells with an IC<sub>50</sub> value of 10.98 ug/mL.<sup>52</sup> This value is lower because the type and place where the bitter gourd extract is used are different, causing the content of secondary metabolites to also be different. Several other studies have also reported that MDA-MB231 breast cancer cells also have the same phenomenon when treated with bitter gourd extract.

The cytotoxic effect of bitter gourd extract is due to the content of secondary metabolites such as flavonoids, saponins, alkaloids, and tannins in bitter gourd extract which can inhibit cell proliferation. Previous studies have also reported bitter gourd extract may inhibit through cell growth mechanisms inducing apoptosis, cell cycle, and metastasis.<sup>53</sup> The IC<sub>50</sub> results in this study tend to be weakly cytotoxic with an IC<sub>50</sub> value of > 100 ug / mL, this can be influenced by the content of active compounds in bitter gourd extract which is polar so that it is difficult to penetrate the MCF-7 cell membrane which is non-polar.

This study showed that the expression of Caspase-9 protein in the P2 and P3 groups experienced a significant increase compared to the cell control group. This shows that bitter gourd extract has an influence on the process of apoptosis of MCF-7 breast cancer cells through increased expression of Caspase-9 protein. This is thought to be due to the influence of secondary metabolite compounds of bitter gourd extract such as flavonoid compounds that can play a role in the apoptosis process through the induction of Caspase-9. Caspase-9 is a family of protease enzymes that play a central role in the process of intrinsic apoptosis that will induce caspase-3 to form DNA fragmentation and apoptotic bodies. The increase in Caspase-9 protein expression in this study is in line with previous studies that flavonoid compounds increase Caspase-9 protein expression which causes Caspase-3 induction so that apoptosis occurs.<sup>54</sup> Other studies have also reported that flavonoid compounds in bitter gourd extract induce cell death through the induction of Caspase-8 and Bad pathways that will induce cytochrome C thereby activating the release of Caspase-9.<sup>55</sup> *Bitter gourd extract has also been shown to induce cell death via the dependent caspase pathway.*<sup>53</sup>

In this study, it was also proven that bitter gourd extract decreased the expression of Bcl2 protein. This is thought to be because the secondary metabolite compounds of bitter gourd extract inhibit the phosphorylation of protein kinase B (Akt), lower cell B 2 lymphoma (Bcl2), and increase protein X related Bcl2 (BAX) and the breakdown of caspase 3, which then triggers apoptosis of breast cancer cells.<sup>56</sup> It is also proved that bitter gourd extract in addition to affecting the dependent caspase pathway, can also trigger other independent pathways such as increasing the activity of cathepsin proteins, calpains, bax/bid pro-apoptosis proteins, serine proteases, and the Bcl2 family.<sup>52</sup> Other studies have also reported that flavonoid compounds induce intrinsic or mitochondrial pathways of apoptosis.<sup>54</sup> This pathway begins with the release of cytochrome c into the mitochondria, which bind to apaf1, dATP, and proCaspase-9 to form apoptosomes. Then proCaspase-9 is split and effector caspases are activated.<sup>57,58</sup> Flavonoids also affect extrinsic or cytoplasmic apoptosis pathways by activating the binding of specific ligands to the corresponding cell surface death receptors. The death receptors are grouped and promote the recruitment of adapter proteins (e.g., FADD), which can interact with procaspase-8 to produce its active form. Then the downstream effector caspase is activated. Caspase-8 may also interact with the intrinsic apoptosis pathway by splitting the bid, which results in the release of cytochrome c. Antiapoptosis members of the Bcl2 family (Bcl-2 and Bcl-xL) can block apoptosis, but their proapoptosis members (Bax and Bid) can also regulate programmed cell death.<sup>54,55</sup>

### V. CONCLUSION

The administration of Administration of bitter gourd extract doses of 1/2 IC<sub>50</sub>, 1 IC<sub>50</sub>, and IC<sub>50</sub> has been shown to significantly affect the increase in Caspase-9 protein expression in MCF-7 breast cancer cells. Administration of bitter gourd extract doses of

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1/2 IC50, 1 IC50, and IC50 has been shown to significantly affect the increase in Caspase-9 protein expression in MCF-7 breast cancer cells.

### ACKNOWLEDGEMENT

The authors declare no conflict of interest and no involvement of sponsors or funding for this research.

### REFERENCES

- 1) Labrèche F, Goldberg MS, Hashim D, Weiderpass E. Breast cancer. In: Occupational Cancers. 2020.
- 2) World Health Organization. Indonesia Fact Sheet Cancer Data GLOBOCAN. 2020.
- 3) Ibrahim A, Sandhika W, Budipramana VS. Uji Efektifitas Ekstrak Etanol Daun *Annona Muricata* Terhadap Sel Kanker Payudara MCF-7. *Jurnal Manajemen Kesehatan Yayasan RSDr Soetomo*. 2020;6(1).
- 4) Dandawate PR, Subramaniam D, Padhye SB, Anant S. Bitter melon: a panacea for inflammation and cancer. *Chinese journal of natural medicines*. 2016 Feb;14(2):81–100.
- 5) Jia S, Shen M, Zhang F, Xie J. Recent Advances in *Momordica charantia*: Functional Components and Biological Activities. *International journal of molecular sciences*. 2017 Nov 28;18(12):2555.
- 6) Vishwanath P, Shobha CR, Suma MN, Prashant A, Rangaswamy C, Gowdappa B. In vitro anti-cancer activity of ethanolic extract of *Momordica charantia* on cervical and breast cancer cell lines. *International Journal of Health & Allied Sciences*. 2015;4(4):210.
- 7) Sebaugh JL. Guidelines for accurate EC50/IC50 estimation. *Pharmaceutical Statistics*. 2011;10(2):128–34.
- 8) Ansari Aa, Singh J, Aminuddin M. Biochemical characterization of *Momordica charantia* (leaf and fruit) and effect of soluble extract on MCF-7 breast cancer cell lines. *Cell Biology and Development*. 2019;3(1).
- 9) Earnshaw WC, Martins LM, Kaufmann SH. Mammalian Caspases: Structure, Activation, Substrates, and Functions During Apoptosis. *Annual Review of Biochemistry*. 1999;68(1):383–424.
- 10) Qiao M, Yang J, Zhao Y, Zhu Y, Wang X, Wang X, et al. Antiliver Fibrosis Screening of Active Ingredients from *Apium graveolens* L. Seeds via GC-TOF-MS and UHPLC-MS/MS. *Evidence-based Complementary and Alternative Medicine*. 2020;
- 11) Oeffinger KC, Fontham ETH, Etzioni R, Herzig A, Michaelson JS, Shih YCT, et al. Breast Cancer Screening for Women at Average Risk: 2015 Guideline Update From the American Cancer Society. *JAMA*. 2015 Oct 20;314(15):1599–614.
- 12) Agu Yosali M, Bintari N. The Relationship Of Menarche Age With Breast Cancer Events In Women Age 25-50 Years In The Short Center Of Indonesia Breast Cancer Foundation (Ykpi) Jakarta. *Jurnal Ilmiah Wijaya*. 2020;11(2).
- 13) Fortner RT, Sisti J, Chai B, Collins LC, Rosner B, Hankinson SE, et al. Parity, breastfeeding, and breast cancer risk by hormone receptor status and molecular phenotype: Results from the Nurses' Health Studies. *Breast Cancer Research*. 2019;21(1).
- 14) Evans DG, Harkness EF, Howel S, Woodward ER, Howell A, Lalloo F. Young age at first pregnancy does protect against early onset breast cancer in BRCA1 and BRCA2 mutation carriers. *Breast Cancer Research and Treatment*. 2018;167(3).
- 15) Chien TJ, Hsu CH, Liu CY, Fang CJ. Effect of acupuncture on hot flush and menopause symptoms in breast cancer - A systematic review and meta-analysis. *PLoS ONE*. 2017;12(8).
- 16) Kolb R, Zhang W. Obesity and Breast Cancer: A Case of Inflamed Adipose Tissue. *Cancers*. 2020 Jun 1;12(6):1–18.
- 17) Lofterød T, Frydenberg H, Flote V, Eggen AE, McTiernan A, Mortensen ES, et al. Exploring the effects of lifestyle on breast cancer risk, age at diagnosis, and survival: the EBBA-Life study. *Breast Cancer Research and Treatment*. 2020 Jul 1;182(1):215.
- 18) Zhong LY, Xiang X, Ye J, Lu W, Lv J, Zhang DW, et al. Application of the MCF-7 Breast Cancer Cells in Endocrine-Disrupting Area. *Advanced Materials Research*. 2014;955–959:928–35.
- 19) Lee A V., Oesterreich S, Davidson NE. MCF-7 Cells - Changing the Course of Breast Cancer Research and Care for 45 Years. Vol. 107, *Journal of the National Cancer Institute*. 2015.
- 20) Geltmeier A, Rinner B, Bade D, Meditz K, Witt R, Bicker U, et al. Characterization of Dynamic Behaviour of MCF7 and MCF10A Cells in Ultrasonic Field Using Modal and Harmonic Analyses. *PloS one*. 2015 Aug 4;10(8):e0134999–e0134999.
- 21) Booms A, Coetzee GA, Pierce SE. MCF-7 as a Model for Functional Analysis of Breast Cancer Risk Variants. *Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*. 2019/07/10. 2019 Oct;28(10):1735–45.
- 22) Reed JC. Mechanisms of apoptosis. *The American journal of pathology*. 2000 Nov;157(5):1415–30.
- 23) Xu X, Lai Y, Hua ZC. Apoptosis and apoptotic body: disease message and therapeutic target potentials. *Bioscience reports*. 2019 Jan 18;39(1):BSR20180992.
- 24) Julien O, Zhuang M, Wiita AP, O'Donoghue AJ, Knudsen GM, Craik CS, et al. Quantitative MS-based enzymology of caspases

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- reveals distinct protein substrate specificities, hierarchies, and cellular roles. Proceedings of the National Academy of Sciences of the United States of America. 2016/03/22. 2016 Apr 5;113(14):E2001–10.
- 25) Li P, Zhou L, Zhao T, Liu X, Zhang P, Liu Y, et al. Caspase-9: structure, mechanisms and clinical application. *Oncotarget*. 2017 Apr 4;8(14):23996–4008.
  - 26) Shang J, Yang F, Wang Y, Wang Y, Xue G, Mei Q, et al. MicroRNA-23a Antisense Enhances 5-Fluorouracil Chemosensitivity Through APAF-1/Caspase-9 Apoptotic Pathway in Colorectal Cancer Cells. *Journal of Cellular Biochemistry*. 2014;115(4):772–84.
  - 27) Hu Q, Wu D, Chen W, Yan Z, Yan C, He T, et al. Molecular determinants of Caspase-9 activation by the Apaf-1 apoptosome. Proceedings of the National Academy of Sciences of the United States of America. 2014/10/13. 2014 Nov 18;111(46):16254–61.
  - 28) Braun F, de Carné Trécesson S, Bertin-Ciftci J, Juin P. Protect and serve: BCL2 proteins as guardians and rulers of cancer cell survival. *Cell cycle (Georgetown, Tex)*. 2013/08/13. 2013 Sep 15;12(18):2937–47.
  - 29) Um HD. Bcl2 family proteins as regulators of cancer cell invasion and metastasis: a review focusing on mitochondrial respiration and reactive oxygen species. *Oncotarget*. 2016 Feb 2;7(5):5193–203.
  - 30) Qian S, Wei Z, Yang W, Huang J, Yang Y, Wang J. The role of BCL2 family proteins in regulating apoptosis and cancer therapy. *Frontiers in oncology*. 2022 Oct 12;12:985363.
  - 31) Morris JL, Gillet G, Prudent J, Popgeorgiev N. Bcl2 Family of Proteins in the Control of Mitochondrial Calcium Signalling: An Old Chap with New Roles. *International journal of molecular sciences*. 2021 Apr 2;22(7):3730.
  - 32) Hafezi S, Rahmani M. Targeting BCL2 in Cancer: Advances, Challenges, and Perspectives. *Cancers*. 2021 Mar 14;13(6):1292.
  - 33) Kapoor I, Bodo J, Hill BT, Hsi ED, Almasan A. Targeting BCL2 in B-cell malignancies and overcoming therapeutic resistance. *Cell death & disease*. 2020 Nov 2;11(11):941.
  - 34) Hatok J, Racay P. Bcl2 family proteins: master regulators of cell survival. *Biomolecular Concepts*. 2016;7(4):259–70.
  - 35) Flores-Romero H, Hohorst L, John M, Albert MC, King LE, Beckmann L, et al. BCL2-family protein tBID can act as a BAX-like effector of apoptosis. *The EMBO journal*. 2021/12/21. 2022 Dec 17;41(2):e108690–e108690.
  - 36) Bleicken S, Hantusch A, Das KK, Frickey T, Garcia-Saez AJ. Quantitative interactome of a membrane Bcl2 network identifies a hierarchy of complexes for apoptosis regulation. *Nature communications*. 2017 Jul 13;8(1):73.
  - 37) Gibson CJ, Davids MS. BCL2 Antagonism to Target the Intrinsic Mitochondrial Pathway of Apoptosis. *Clinical cancer research : an official journal of the American Association for Cancer Research*. 2015 Nov 15;21(22):5021–9.
  - 38) Aniogo EC, George BPA, Abrahamse H. Role of Bcl2 Family Proteins in Photodynamic Therapy Mediated Cell Survival and Regulation. *Molecules (Basel, Switzerland)*. 2020 Nov 13;25(22):5308.
  - 39) Villarreal-La Torre VE, Guarniz WS, Silva-Correa C, Cruzado-Razco L, Siche R. Antimicrobial activity and chemical composition of *Momordica Charantia*: A review. Vol. 12, *Pharmacognosy Journal*. 2020.
  - 40) Alshehri MA. Anticancer activity of methanolic extract of *Momordica charantia* against human colon, liver and breast cancer cell lines-In vitro. *Journal of Biology*. 2016;6(6).
  - 41) Sur S, Ray RB. Bitter Melon (*Momordica Charantia*), a Nutraceutical Approach for Cancer Prevention and Therapy. *Cancers*. 2020 Jul 27;12(8):2064.
  - 42) Fang EF, Froetscher L, Scheibye-Knudsen M, Bohr VA, Wong JH, Ng TB. Emerging Antitumor Activities of the Bitter Melon (*Momordica charantia*). *Current protein & peptide science*. 2019;20(3):296–301.
  - 43) Ray RB, Raychoudhuri A, Steele R, Nerurkar P. Bitter Melon (*Momordica charantia*) Extract Inhibits Breast Cancer Cell Proliferation by Modulating Cell Cycle Regulatory Genes and Promotes Apoptosis. *Cancer Research*. 2010;70(5):1925–31.
  - 44) Liaw CC, Huang HC, Hsiao PC, Zhang LJ, Lin ZH, Hwang SY, et al. 5 $\beta$ ,19-Epoxycurbitane Triterpenoids from *Momordica charantia* and Their Anti-Inflammatory and Cytotoxic Activity. *Planta Medica*. 2014;81(01):62–70.
  - 45) Raina K, Kumar D, Agarwal R. Promise of bitter melon (*Momordica charantia*) bioactives in cancer prevention and therapy. *Seminars in cancer biology*. 2016/07/21. 2016 Oct;40–41:116–29.
  - 46) Spronk I, Schellevis FG, Burgers JS, de Bock GH, Korevaar JC. Incidence of isolated local breast cancer recurrence and contralateral breast cancer: A systematic review. *Breast*. 2018;39:70–9.
  - 47) Lim B, Greer Y, Lipkowitz S, Takebe N. Novel apoptosis-inducing agents for the treatment of cancer, a new arsenal in the toolbox. *Cancers (Basel)*. 2019;11(8):1–40.
  - 48) Lukyanova NY, Rusetskya N v., Tregubova NA, Chekhun VF. Molecular profile and cell cycle in MCF-7 cells resistant to cisplatin and doxorubicin. *Exp Oncol*. 2009;31(2):87–91.
  - 49) Ju JH, Jeon MJ, Yang W, Lee KM, Seo HS, Shin I. Induction of apoptotic cell death by *Pharbitis nil* extract in HER2-overexpressing MCF-7 cells. *J Ethnopharmacol* [Internet]. 2011;133(1):126–31. Available from:

## The Effect of Bitter Melon Extract (*Momordica Charantia*) On CASPASE-9 and Bcl-2 Proteins Expression

<http://dx.doi.org/10.1016/j.jep.2010.09.021>

- 50) Jin S, Zhang QY, Kang XM, Wang JX, Zhao WH. Daidzein induces MCF-7 breast cancer cell apoptosis via the mitochondrial pathway. *Annals of Oncology* [Internet]. 2010;21(2):263–8. Available from: <https://doi.org/10.1093/annonc/mdp499>
- 51) Comşa Ş, Cîmpean AM, Raica M. The story of MCF-7 breast cancer cell line: 40 Years of experience in research. *Anticancer Res.* 2015;35(6):3147–54.
- 52) Ray RB, Raychoudhuri A, Steele R, Nerurkar P. Bitter Melon (*Momordica charantia*) extract inhibits breast cancer cell proliferation by modulating cell cycle regulatory genes and promotes apoptosis. *Cancer Res.* 2010 Mar 1;70(5):1925–31.
- 53) Li CJ, Tsang SF, Tsai CH, Tsai HY, Chyuan JH, Hsu HY. *Momordica charantia* extract induces apoptosis in human cancer cells through caspase- and mitochondria-dependent pathways. *Evidence-based Complementary and Alternative Medicine.* 2012;2012.
- 54) Chen G, Zhou D, Li XZ, Jiang Z, Tan C, Wei XY, et al. A natural chalcone induces apoptosis in lung cancer cells: 3D-QSAR, docking and an in vivo/vitro assay. *Sci Rep.* 2017 Dec 1;7(1).
- 55) Ramos S. Effects of dietary flavonoids on apoptotic pathways related to cancer chemoprevention. Vol. 18, *Journal of Nutritional Biochemistry.* 2007. p. 427–42.
- 56) Koosha S, Alshawsh MA, Yeng LC, Seyedan A, Mohamed Z. An association map on the effect of flavonoids on the signaling pathways in colorectal cancer. Vol. 13, *International Journal of Medical Sciences.* Ivyspring International Publisher; 2016. p. 374–85.
- 57) Veeramuthu D, Raja WRT, Al-Dhabi NA, Savarimuthu I. *Flavonoids: Anticancer Properties.* *Flavonoids - From Biosynthesis to Human Health.* 2017;
- 58) Panche AN, Diwan AD, Chandra SR. *Flavonoids: An overview.* *J Nutr Sci.* 2016;5.



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## Utilization of Water Hyacinth as Organic Fertilizer on Kemaro Island, Palembang City



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**ABSTRACT:** The water hyacinth is a free-floating aquatic plant. Water hyacinth has massive reproductive capacity, which causes several problems, including ecosystem destruction, irrigation problems, and its use as a breeding ground for mosquitoes, which causes the mosquito population to increase. The high growth rate of water hyacinth is also a major problem faced by the people on Kemaro Island. The large number of water hyacinth plants on Kemaro Island causes environmental issues, such as slum settlements. Pupuk Sriwidjaja Palembang (Pusri) Ltd. is here to overcome this problem through a community empowerment program, namely the Sehat Sejahtera Program (Sesera). The methods used in this research are literature study, observation, and interviews. The research results show that the Sesera Program is able to reduce the number of water hyacinths that accumulate around the residences of Kemaro Island residents. Through the Sesera Program, Pusri empowers the community to utilize and process water hyacinth in order to reduce the number of water hyacinth growing around Kemaro Island. Activities carried out by utilizing water hyacinth to become compost. To maintain these impacts or benefits, the Sesera Program through water hyacinth composting activities needs to involve other stakeholders who are able to encourage and increase the impact of the program, such as the Village Government, City government, and agriculture service.

**KEYWORDS:** Water Hyacinth, Organic Fertilizer, Kemaro Island

### I. INTRODUCTION

Eichornia crassipes, widely known as water hyacinth, is a weed plant that lives in aquatic areas (Rezekiah et al., 2022; Vidya & Girish, 2014). Water hyacinth lives floating in deep water or develops roots in the mud in shallow water (Rezekiah et al., 2022; Sindhu et al., 2017). The physical characteristics of the water hyacinth plant are wide, thick, shiny, and oval leaves with long, springy, and round stems. Water hyacinth has hairy roots and is purple-black in color. Water hyacinth can live at temperatures range from 21.1 °C to 27.2 °C, with an estimated pH tolerance range from 5.0 to 7.5 (Vidya & Girish, 2014).

Water hyacinth has fast development rate, both vegetatively (once every 3 – 5 days) or generative, where 1 (one) water hyacinth stem will develop an area of 1 m<sup>2</sup> within 52 days (Rezekiah et al., 2022). Judging from its fast reproduction, water hyacinth is nicknamed the 'beautiful blue devil' because it grows quickly like a dense green mat on the surface of water, such as lakes, rivers, ponds, waterways and ditches (Vidya & Girish, 2014). The rapid development of water hyacinth has turned water hyacinth into a weed plant in water areas (Rezekiah et al., 2022). Grodowitz (1998) stated that water hyacinth is one of the most productive plants on earth and at the same time is the worst water weed in the world.

Water hyacinth has become one of the main problems in water resources management due to its high level of development (Kwenda et al., 2023). Research conducted predicts that ten water hyacinth plants on a land area of around half a hectare can regenerate into 650,000 plants within 8 months. According to de Medeiros et al. (2017), excessive nitrogen and phosphorus content is the main cause of the high growth of water hyacinth plants. This content triggers excessive growth and increases phytoplankton, which then causes a decrease in biological oxygen demand (BOD) in the water (de Medeiros et al., 2017). This plant has an impact on deoxygenation of water sources, which affect aquatic life forms (Rommens et al., 2003).

Water hyacinth plants are currently considered a serious threat to biodiversity. Environmental hazards associated with these plants are a decrease in water quality and drastic changes in plant and animal communities, diffusion of light and oxygen that limits the reduction of water movement, and also as a breeding ground for mosquitoes, which causes the mosquito population to increase (Sornvoraweat & Kongkiattikajorn, 2010). Other environmental hazards include blockage of irrigation, hydropower and

## Utilization of Water Hyacinth as Organic Fertilizer on Kemaro Island, Palembang City

water supply lines, obstructions to water transportation, blockage of canals and rivers leading to flooding (Vidya & Girish, 2014). Efforts to control this weed require high costs and very high labor. Several biological, physical and chemical methods have been tried to control and eradicate water hyacinth, but none of these strategies has proven to be a permanent solution for controlling this weed (Sindhu et al., 2017).

Contrary to its nickname as the worst plant in the world, water hyacinth contains 20% cellulose, 48% hemicellulose and 3.5% lignin (Sindhu et al., 2017). The high content of hemicellulose and cellulose in water hyacinth can be explored and used as a raw material for making biofuels. In addition, Sahu et al. (2002) explained that water hyacinth contains large amounts of nitrogen, phosphorus, magnesium, sulfur, manganese, copper, zinc and other constituents. Water hyacinth has a higher content of iron, calcium and potassium than other terrestrial plants, but it has not been widely used because of the low level of dry matter. Previous research reported that water hyacinth can be converted into ethanol and biogas fuel (Das et al., 2016). Vidya & Girish (2014) also explained that water hyacinth can be used in traditional medicine, biogas production, mushroom bedding, black carbon production, rope making, fiberboard production, as animal feed and fish feed, green manure, compost, and as a plant ornamental.

Kwenda et al. (2013) explained that water hyacinth can be used for wastewater treatment. Huynh et al. (2021) emphasized that water hyacinth plants are very effective in removing stains, suspended solids, BOD, organic matter, and heavy metals, so water hyacinth has great potential to be used as a natural water purification system at a lower cost than the cost of standard waste treatment facilities ( Du et al., 2020; Kwenda et al., 2023). Based on research conducted by MAULIDYNA et al. (2021) obtained results that water hyacinth can be processed into organic fertilizer, which can be marketed widely and then ultimately be able to reduce the number of water hyacinth populations. Water hyacinth can be processed into organic fertilizer because it contains 78.47% organic material, 21.23% C-Organic, 0.28% Total N, 0.011% Total P, and 0.016% Total K, and contains cellulose (Rezekiah et al., 2022). Referring to this composition, water hyacinth plants have the potential to be used as organic fertilizer.

## II. METHOD

This research is qualitative research with data collection methods through literature study, observation and interviews. Literature studies are carried out by collecting literature related to the topic to be studied. Observations were carried out by observing water hyacinth composting activities carried out by the Kemaro Island community to overcome the problem of accumulation of water hyacinth plants. Interviews were conducted with Pupuk Sriwidjaja Palembang (Pusri) Ltd., residents and Heads and Officials of Satu Ilir Village, Palembang City, South Sumatra.

## III. RESULT AND DISCUSSION

Kemaro Island is one of the areas in Satu Ilir Village, Ilir Timur Dua District, Palembang City, South Sumatra. Kemaro Island, is a small delta on the Musi River, located about 6 km from the Ampera Bridge. Kemaro Island is located in an industrial area which is between the Sriwijaya Fertilizer Factory and Pertamina Plaju and Sungai Gerong. The position of Kemaro Island is slightly to the east from the center of Palembang City. Kemaro Island has an area of  $\pm$  79 hectares with a height of 5 meters above sea level.



Figures I. Kemaro Island  
Source: fainun.com

## Utilization of Water Hyacinth as Organic Fertilizer on Kemaro Island, Palembang City

### A. The potential for processing organic fertilizer from water hyacinth and its benefits

Organic fertilizers are fertilizers made from organic materials such as plants and/or animals, which are used as planting media so that the supply of soil organic matter is fulfilled (Rezekiah et al., 2022). The use of fertilizers aims to improve the physical, chemical and biological properties of the soil so that plants become more fertile, especially the use of organic fertilizers, which are able to provide better growth and development results for plants. In addition, the use of organic fertilizers does not have a negative impact on soil conditions when compared to inorganic fertilizers, which can cause soil productivity to decrease if used excessively (Rezekiah et al., 2022). Organic fertilizers are also somewhat cheaper and more effective as a good source of nitrogen for sustainable crop production, but their availability is a problem because the demand for fertilizer is very high (Vidya & Girish, 2014).

Furthermore, Vidya & Girish (2014) explained that the use of organic matter such as weeds is a resource that is often overlooked for remediation of soil fertility. Weed exploitation is a more effective and efficient way to overcome the problem of the high growth rate of water hyacinth. The productivity potential of water hyacinth in nutrient enriched waters is the reason why water hyacinth was chosen as a source of biomass for organic fertilizer. This is a prospective effort to tackle water hyacinth weeds in water areas, namely by utilizing water hyacinth plants for organic fertilizer. Organic fertilizer produced from water hyacinth contains 18.93% C-organic, 1.78% total N, 1.10% P, and 1.26% K (Yunindanova et al., 2020).

### B. Water Hyacinth and Kemaro Island

Kemaro Island is a small delta located in the middle of the Musi River, Palembang City, South Sumatra. Due to its location in the middle of a river, the growth of water hyacinth plants around Kemaro Island is uncontrolled. The water hyacinth plants that grow continue to grow every day, causing accumulation, which in turn causes a slums around the residences of the Kemaro Island residents.

The people of Kemaro Island have always considered the water hyacinth plant as a nuisance plant that destroys the environment in which they live. Water hyacinth plants grow in large numbers, causing accumulation, which then causes an unpleasant odor. Apart from that, the accumulation of water hyacinth also causes slums in residential areas, which ultimately reduces the quality of the living environment for the people of Kemaro Island. Water hyacinth plants that grow abundantly also often cover harbors or riverbanks where boats owned by local residents rest. So far, local residents have never felt the positive impact of the water hyacinth plants which grow in very large numbers around Kemaro Island.

Through the Sehat Sejahtera Program (Sesera) that initiated by Pupuk Sriwidjaja Palembang (Pusri) Ltd. with the aim of empowering the people of Kemaro Island has succeeded in utilizing and processing water hyacinth into a useful resource. Pusri was keen to see the opportunities from the abundant water hyacinth plants on Kemaro Island. Several activities are carried out to utilize water hyacinth, including water hyacinth composting activities, water hyacinth biomass, and water hyacinth crafts. The water hyacinth composting activity was carried out by inviting Kemaro Island residents to utilize and process water hyacinth into compost which was then used as a planting medium. Pusri provided training to the people of Kemaro Island on how to technically process water hyacinth into organic fertilizer.

Utilizing water hyacinth through water hyacinth composting activities can reduce the number of water hyacinths that accumulate around residential areas. Through water hyacinth composting activities, water hyacinth can be managed as much as 1 ton/month. Based on this data, Pusri's intervention in the use of water hyacinth was able to reduce the number of hyacinths that had accumulated around Kemaro Island, thereby reducing the slums of residential areas. The existence of water hyacinth composting activities can help residents save costs on planting media and fertilizer used for agriculture up to IDR 25,000,000.00.

## IV. CONCLUSION

Water hyacinth (*Eichornia crassipes*) is a weed plant in aquatic areas that lives floating in deep water or develops roots in mud in shallow water. Water hyacinth has become one of the main problems in water resources management, because of its high regenerative power and is included in the list of the top ten plants that are harmful to the environment according to the IUCN version. However, behind the problems that can be caused by water hyacinth, water hyacinth can also be processed into organic fertilizer, which can be marketed and at the same time can reduce the water hyacinth population in the water.

The use of water hyacinth as organic fertilizer is carried out through water hyacinth composting activities in the Sehat Sejahtera Program (Sesera) run by Pupuk Sriwidjaja Palembang (Pusri) Ltd. on Kemaro Island. This program aims to empower the community and utilize the resources owned by Kemaro Island. Through the water hyacinth composting activity, the community was given training on the technical processing of water hyacinth into compost and provided materials in the form of decomposers. The compost produced from this activity is then used as fertilizer for hydroponic plants. The use of water hyacinth plants as organic fertilizer can reduce the amount of water hyacinth that accumulates around residential areas.

### V. RECOMMENDATIONS

Based on the results and discussions, suggestions that can be given to increase the use of water hyacinth as organic fertilizer are to collaborate with government agencies to disseminate processed organic fertilizer from water hyacinth by mass marketing it on the market.

### REFERENCES

- 1) Das, S. P., Gupta, A., Das, D., & Goyal, A. (2016). Enhanced bioethanol production from water hyacinth (*Eichhornia crassipes*) by statistical optimization of fermentation process parameters using Taguchi orthogonal array design. *International Biodeterioration and Biodegradation*, 109, 174–184. <https://doi.org/10.1016/j.ibiod.2016.01.008>
- 2) de Medeiros, G. A., de Lima Tresmondi, A. C. C., de Queiroz, B. P. V., Fengler, F. H., Rosa, A. H., Fialho, J. M., Lopes, R. S., Negro, C. V., dos Santos, L. F., & Ribeiro, A. I. (2017). Water quality, pollutant loads, and multivariate analysis of the effects of sewage discharges into urban streams of Southeast Brazil. *Energy, Ecology and Environment*, 2(4), 259–276. <https://doi.org/10.1007/s40974-017-0062-y>
- 3) Du, Y., Wu, Q., Kong, D., Shi, Y., Huang, X., Luo, D., Chen, Z., Xiao, T., & Leung, J. Y. S. (2020). Accumulation and translocation of heavy metals in water hyacinth: Maximising the use of green resources to remediate sites impacted by ewaste recycling activities. *Ecological Indicators*, 115(March), 106384. <https://doi.org/10.1016/j.ecolind.2020.106384>
- 4) Grodowitz, M. J. (1998). An active approach to the use of insect biological control for the management of non-native aquatic plants. *Journal of Aquatic Plant Management*, 36(JAN.), 57–61.
- 5) Huynh, A. T., Chen, Y. C., & Tran, B. N. T. (2021). A small-scale study on removal of heavy metals from contaminated water using water hyacinth. *Processes*, 9(10), 1–9. <https://doi.org/10.3390/pr9101802>
- 6) Kwenda, F., Nhiwatiwa, T., & Gumindoga, W. (2023). An analysis of heavy metal contamination in vegetables and herbs growing in water hyacinth manure, case of Lake Chivero. *Physics and Chemistry of the Earth*, July. <https://doi.org/10.1016/j.pce.2023.103437>
- 7) MAULIDYNA, A., ALICIA, F., AGUSTIN, H. N., DEWI, I. R., NURHIDAYAH, I., DEWANGGA, A., KUSUMANINGRUM, L., NUGROHO, G. D., JUMARI, J., & SETYAWAN, A. D. (2021). Review: Economic impacts of the invasive species water hyacinth (*Eichhornia crassipes*): Case study of Rawapening Lake, Central Java, Indonesia. *International Journal of Bonorowo Wetlands*, 11(1), 18–31. <https://doi.org/10.13057/bonorowo/w110103>
- 8) Rezekiah, A. A., Fitriani, A., Shiba, Y. N., & Junaedi, J. (2022). Pemanfaatan eceng gondok sebagai pupuk organik di desa pemangkih tengah. *Jurnal Pengabdian ILUNG (Inovasi Lahan Basah Unggul)*, 2(2), 210. <https://doi.org/10.20527/ilung.v2i2.5803>
- 9) Rommens, W., Maes, J., Dekeza, N., Inghelbrecht, P., Nhiwatiwa, T., Holsters, E., Ollevier, F., Marshall, B., & Brendonck, L. (2003). The impact of water hyacinth (*Eichhornia crassipes*) in a eutrophic subtropical impoundment (Lake Chivero, Zimbabwe). I. Water quality. *Archiv Fur Hydrobiologie*, 158(3), 373–388. <https://doi.org/10.1127/0003-9136/2003/01580373>
- 10) Sahu, A. K., Sahoo, S. K., & Giri, S. S. (2002). Efficacy of water hyacinth compost in nursery ponds for larval rearing of Indian major carp, *Labeo rohita*. *Bioresource Technology*, 85(3), 309–311. [https://doi.org/10.1016/S0960-8524\(02\)001001](https://doi.org/10.1016/S0960-8524(02)001001)
- 11) Sindhu, R., Binod, P., Pandey, A., Madhavan, A., Alphonsa, J. A., Vivek, N., Gnansounou, E., Castro, E., & Faraco, V. (2017). Water hyacinth a potential source for value addition: An overview. *Bioresource Technology*, 230, 152–162. <https://doi.org/10.1016/j.biortech.2017.01.035>
- 12) Sornvoraweat, B., & Kongkiattikajorn, J. (2010). Separated hydrolysis and fermentation of water hyacinth leaves for ethanol production. *KKU Research Journal*, 15(9), 794–802. [http://resjournal.kku.ac.th/article/15\\_09\\_794.pdf](http://resjournal.kku.ac.th/article/15_09_794.pdf)
- 13) Vidya, S., & Girish, L. (2014). Water Hyacinth as a Green Manure for Organic Farming. *Int. J. Res. Applied, Nat. Soc. Sci.*, 2(6), 65–72. [www.impactjournals.us](http://www.impactjournals.us)
- 14) Yunindanova, M. B., Supriyono, S., & Hertanto, B. S. (2020). Pengolahan Gulma Invasif Eceng Gondok Menjadi Pupuk Organik Layak Pasar Sebagai Solusi Masalah Rawa Pening. *PRIMA: Journal of Community Empowering and Services*, 4(2), 78. <https://doi.org/10.20961/prima.v4i2.42053>



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# Sustainability Assessment of Economic and Environmental Impacts: A Critical Systems Thinking Approach to Tackle Complex Environmental Challenges



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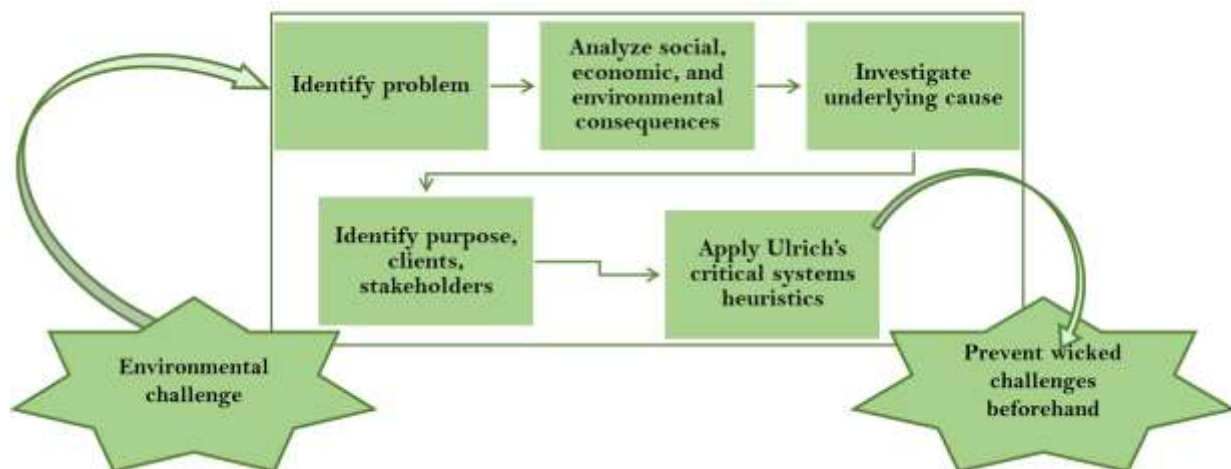
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**ABSTRACT:** Complex and interconnected vicious cycles of problems such as climate change, epidemics, poverty, and pollution create wicked environmental challenges. These transcend both conceptual and spatial boundaries, presenting a formidable challenge to contemporary society. Recognizing the diverse perspectives held by different quality individuals, this paper explores the necessity of involving key stakeholders in decision-making processes to effectively address these challenges. However, the exclusion of stakeholders from power-sharing mechanisms within existing social systems is a significant impediment. To address these multifaceted issues, an additional focus on emancipatory commitment and methodologies is required. One approach that holds promise in this regard is Ulrich's critical systems heuristics, a critical systems methodology that provides practical tools for achieving the goal. Through a comprehensive case analysis of a gas blow-out tragedy, this paper explores the application of critical systems heuristics and underscores the importance of extending its use beyond planning situations to encompass a critical evaluation of existing institutions. Introducing the contextual background of the mishap, it explores the extensive social, economic, political, and environmental consequences resulting from the incident. It highlights the fundamental cause of the wicked problem and employs the critical systems approach as a prospective tool to augment accountability and involve stakeholders in overcoming such wicked socio-environmental challenges.

**KEYWORDS:** Environmental problems; ecological economy, critical systems thinking; Ulrich's heuristics, accountability, stakeholders' involvement.

## GRAPHICAL ABSTRACT



## I. INTRODUCTION

Socio-environmental problems frequently exhibit a wicked nature, evolving within the intricate tapestry. These dilemmas, ranging from poverty, pollution, climate change to epidemics, present a formidable challenge for today's world. Due to their propensity to cross conceptual and spatial barriers as well as the wide range of perspectives, they are complex in nature

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(McIntyre, 2009). Effective resolution of these wicked problems demands the active engagement of systems thinking approach in the decision-making process. Several research endeavors have been dedicated to exploring these types of complex challenges and employing a framework of critical systems thinking.

Jackson (2020) investigated the complexity of Covid-19 pandemic, concentrating in particular on the difficulties brought on by "structural complexity," "organizational complexity," and "cognitive complexity". The study argued that traditional approaches fall short in addressing pandemic intricacies. Instead, the study suggested using "critical systems thinking" (CST) and "critical systems practice" (CSP) for better solutions. The author introduces five "systemic perspectives" - "machine," "organism," "cultural/political," "societal/environmental," and "interrelationships" - as a comprehensive framework. Applied to that pandemic, these perspectives showcase how CST and CSP could have enhanced preparedness and response, revealing insights from resource gaps to marginalized group impacts (Jackson, 2020). For the same challenge, Elias (2021) developed a reference mode to capture the behavior of Kerala's Covid-19 curve, identified, and analyzed stakeholders involved in the case, and created an overall system thinking design.

Nguyen et al. (2023) examined how CST is perceived and applied in policymaking. The study revealed CST's potential benefits and feasibility in practice in public policy. Various CST tools, such as causal loop diagrams and participatory modeling, were identified in the study for understanding systems, facilitating collaboration, and co-designing solutions. The claimed benefits of CST included its ability to comprehend complex issues, promote stakeholder participation, shift thinking towards holistic approaches, aid in learning and decision support, and potentially impact policy and practice (Nguyen et al., 2023). While CST has been the focus of several issues, very few research demonstrated its implementation in the context of socio-environmental disasters.

The objective of this study is to comprehensively analyze and address the intricate and interrelated vicious cycles of a socio-environmental issue that collectively give rise to a range of complex and wicked environmental challenges. The research aims to identify the underlying mechanisms driving these cycles, quantify their impacts, and propose holistic strategies that can effectively mitigate the compounding effects by applying Ulrich's critical systems heuristics on both local and global scales.

## II. METHOD: OVERALL RESEARCH FRAMEWORK

The comprehensive research framework (depicted in Figure 1) was formulated and thoroughly deliberated upon in the subsequent sections. This framework serves a dual purpose: not only does it address the consequences of intricate challenges known as wicked problems, but it also serves as a proactive measure to avert the emergence of such problems in the first place. This leads to long-term solutions, efficient resource allocation, and enhanced preparedness. Collaboration among stakeholders is facilitated, ultimately resulting in reduced risks and positive socio-environmental impact.

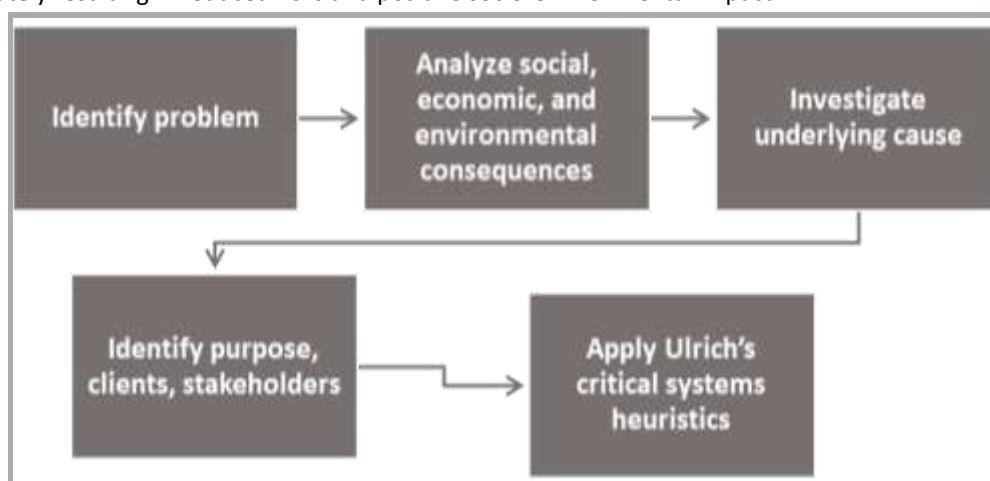


Figure 1. Comprehensive research framework

### A. Overview of the Wicked Challenge

A massive gas blow-out took place in the *Chattak-2* (known as *Magurchara*) gas field at midnight on June 14, 1997, which caused severe damage to the environment, economy, and social life of Bangladesh (Alam et al., 2022). The blow-out started with a huge explosion; rail lines adjacent to the gas field were closed for five months. The primary exploration company, Occidental, which contracted out the work to another company, Unocal, was not able to control the 500-foot fire for about six months (Siddiqui, 2010). As a result, the blow-out was not sealed for the next six months. Surrounding people were evacuated from their property

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and that enormous fire destroyed nearby national forest as well as many important flora and fauna of the region (Siddiqui, 2001; Khan & Nasin, 2014).

A number of managerial, legal, environmental, and human rights issues were raised after the incident. Apparently, the question that arises from that blow-out is -whether the affected would get proper compensation in terms of damage management. During that period, impoverished individuals were unable to consider the environmental harm, which subsequently led to significant detrimental consequences. Unfortunately, Occidental company easily shifted their burden by selling their share to another drilling company- Unocal, afterwards Unocal shifted their share to Chevron (Deb, 2020). People sought clarification about the prolonged governmental silence concerning compensation claim resolution (Khan & Nasir, 2014).

### **B. Social, Economic, And Environmental Consequences**

Situated a mere 600 meters from the nearest inhabited area, the *Magurchara* gas field was in close proximity to the dwellings of the Khasia tribal people, who relied heavily on cultivation for their livelihood (Uddin et al., 2007). Tragically, the incident not only obliterated their farmlands but also forced their displacement from the region, creating a housing predicament that posed challenges for the government. The explosion during the accident left some children with hearing impairments due to the deafening noise (Alamgir Hussain, 2015). In a gesture of compensation, Occidental provided them with an insignificant amount, which hardly addressed the magnitude of their suffering.

The repercussions of the blow-out extended far beyond the immediate site. The disruption caused to the Dhaka-Sylhet (two cities of the country) highway and railway had far-reaching economic ramifications, severely impacting producers reliant on railways for transporting goods between the two cities. An additional casualty was the devastation inflicted upon 29 adjacent tea gardens, with experts predicting a bleak prognosis for tea cultivation in the area for the next five decades (Khan & Nasir, 2014). The incident also inflicted damage on the Power Development Board's power line emanating from the national grid.

During the incident, an estimated 250 billion cubic feet of natural gas was damaged, resulting in a staggering total loss of \$12 billion (Deb, 2020). After a long negotiation, Occidental provided compensation of \$58.24 million, a mere fraction of the incurred losses. More than two decades have passed since the Magurchara incident but the biodiversity-destroyed forest and its vicinity areas have not been restored properly (Deb, 2020). In order to delve into this ongoing compensation dilemma, the subsequent section establishes the political and economic backdrop surrounding the *Magurchara* incident.

The blow-out cast a calamitous impact on the local ecosystems, decimating dense natural forests and severely affecting the soil composition. The soil fertility was irrevocably compromised, rendering it unsuitable for supporting substantial structures. The inferno caused by the gas blow-out devastated the 700-acre *Magurchara* reserved forest, which was a sanctuary for diverse flora and fauna, including 63 species of animals (Uddin et al., 2007; Dev 2020). Soil experts forecast that the lands impacted by the blow-out will remain unsuitable for growing tea, trees, crops, and vegetables due to the soil contamination by heavy metals resulting from that incident (Alam et al., 2022).

### **C. Cause Analysis**

According to the Australian Public Service Commissioner, Briggs (2009), "wicked problems" refer to intricate challenges in public policy that cannot be effectively addressed using conventional analytical methods due to their complexity, changing nature, interdependencies, conflicting objectives, and multiple causes. The Production Share Contract (PSC) of Bangladesh was grappling with several such complex issues. The country was heavily dependent on foreign investments, yet foreign companies often lack a long-term stake in the welfare of an investing country. Immediate profit motives frequently guide their decisions, potentially leading to environmentally hazardous choices (Islam, 2000). The PSC between International Oil Companies (IOCs) and the government, designed to safeguard the interests of both parties, inadvertently favors the IOCs. The contract lacked provisions for ensuring accountability and transparency, and it fails to delineate responsibility in case of any mishap.

IOCs engaged in gas and oil production in the country operate under PSCs with the government. The terms oblige the government to purchase gas at a higher rate fixed by the companies, while the government sells the same gas in the domestic market at a subsidized rate (Islam, 2000), resulting in substantial annual losses for the government. This policy stems from global energy politics and donor group pressures. Despite the emergence of capable national companies with proven track records, world politics impeded their involvement in exploration.

The lack of transparency allowed a foreign company to operate without sufficient accountability. In government collaborations with foreign entities, control was established through formal contracts, specifying service standards and performance criteria. Nonetheless, accountability could become convoluted, making it difficult for users to determine who was ultimately responsible for the services provided or the achieved outcomes (Briggs, 2009). As Briggs (2009) noted, while the approach of government by

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network may alter operations, ultimate accountability remains with officials responsible for public expenditure. In practice, accountability can become blurred, necessitating clear delineation of responsibility to maintain effective governance.

### D. Ulrich's Critical Systems Heuristics

Ulrich's critical systems heuristics, introduced in 1983, furnishes practical tools for revealing the normative underpinnings of applied inquiries or proposed interventions, facilitating a constructive dialogue between planners and concerned citizens (Ulrich, 1993). Central to this approach are the concepts of boundary judgment and its application, as elucidated by Ulrich in 1993. Boundary judgment encapsulates inherent a priori assumptions that inform applied inquiries and a posteriori implication (Ulrich, 1993). Although these judgments are vital constituents of the systems concept, they are often overlooked and assumed to be objective. Boundaries extend beyond mere physical confines; they encompass temporal and social dimensions, collectively influencing the normative essence of the inquiry or intervention (Ulrich, 1993).

The notion of boundary judgment serves as a tool to unpack the normative societal and ecological ramifications of system design. Ulrich identified 12 categories of boundary judgments that invariably underlie any systems design, categorized into four groups, each addressing a critical aspect of normative design (Ulrich, 1993):

- 1) **Design's basis of value:** This group investigates the sources of motivation, purpose, and success criteria of the design. Whose purposes are being served, and what measures gauge success?
- 2) **Design's basis of power:** This group scrutinizes control sources within the design, decision-making authority, and the environment beyond their jurisdiction.
- 3) **Design's basis of knowledge:** This group explores sources of expertise, practical experience, organizational design skills, and the role of expertise in design.
- 4) **Design's basis of legitimization:** This group examines sources of legitimacy vis-à-vis those affected but not involved yet, as well as mechanisms for self-reflection and responsibility, encompassing marginalized voices and nature.

While the first three groups pertain to the roles and interests of involved stakeholders in the planning process, the fourth group addresses those impacted but excluded from involvement (Ulrich, 1993). However, the concept of boundary judgment is not solely a tool for introspection. Ulrich (1993) argues that self-reflection is not guaranteed, particularly if it relies solely on the goodwill of planners. Due to the complexity of exposing the normative essence of plans, additional heuristic support is necessary (Ulrich, 1983). Furthermore, solely reflective planning detached from experiential constraints and absent input from those affected lacks democratic legitimacy. To rectify this, Ulrich emphasizes the importance of equal engagement between planners and affected citizens, fostering a dialogue that allows the boundary judgments of the plan.

### III. RESULTS AND IMPLICATIONS: APPLY ULRICH'S HEURISTICS TO ENHANCE ACCOUNTABILITY

The *Magurchara* gas blow-out incident sheds light on a multitude of ethical issues concerning gas exploration and compensation following gas well blow-outs. In this section, Ulrich's critical unfolding approach was employed to tackle the complexity inherent in such problems. Ulrich's critical systems heuristics offer empirical support for both social planners and citizens impacted by plans, facilitating reflection and criticism of underlying value assumptions and implications (Maru & Woodford, 2001).

Accountability demands a comprehensive consideration of social, cultural, economic, and environmental factors, an approach that "sweeps in" and "unfolds" the multifaceted dimensions (McIntyre, 2005). In this case study, the end users were the citizens of the country who lived in that surrounding area. With the main focus on natural gas exploration and production, the relevant ministry could have assigned the responsibility to domestic companies, ensuring accountability throughout the entire process. This high level of accountability would help minimize the chances of negligence or any unwanted incident. In contrast, IOCs like Occidental lacked accountability, operating with unchecked authority. According to McIntyre & Vries (2009), enhancing the ability of people to engage actively in designing policy can make a difference to governance, provided they are encouraged to think critically and systemically about the future.

Occidental held unilateral decision-making power over drilling activities, contracts, and economic gains, avoiding environmental concerns. They disregarded the fact that climate change is not an issue of any particular country and hence everybody would bear severe consequences of it (Ball, 2009). Occidental omitted social and environmental risk assessments before initiating their operations, neglecting the global ramifications of environmental disasters. Their actions contradicted the principle that environmental impacts are evenly distributed worldwide, implicating all nations.

The overarching planning authority of Occidental led to unchecked decisions. They overlooked geographic, environmental, and soil characteristics and excluded local experts, employing only their own experts who lacked knowledge of the regional

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geological and soil characteristics. Addressing climate change necessitates collaborative action between nations, public and private sectors, civil society, and individuals to achieve shared goals (McIntyre & Vries, 2009).

Systemic governance seeks to a conceptual and spatial boundary through a design of inquiring systems approach, involving questioning and applying questions about the existing and desired conditions for those affected by decisions (McIntyre & Vries, 2009). Employing Ulrich's critical unfolding approach (Table 1), the study investigated what was the case and what ought to be the case, utilizing a questioning framework to illuminate the ethical dimensions of the *Magurchara* gas blow-out incident.

**Table 1. Applying Ulrich's critical systems heuristics in *Magurchara* incident.**

Concern focus	What was the case	What ought to be the case
Actual Client	Government was the client of Occidental company.	Citizens of Bangladesh ought to be the end user and they ought to be treated as customers.
Actual purpose	Actual purpose of the system was making profit was the actual purpose.	To extract natural gas without hampering people, society and environment.
Measure of success	They measured their success in quantitative scale; they did not consider about client or environment.	Measures ought to be qualitative to the client, environment and next generation.
Decision maker	Government and Occidental company were decision makers.	As the end users are the citizens, they along with other stakeholders ought to be involved in decision making process.
What conditions are controlled	Only economic conditions (related with their benefits) were controlled.	They ought to control social, environmental and political conditions; determine consequences for self and others.
What conditions are not controlled	Environmental effect and risks associate the drilling project were not controlled by the decision-maker.	Before starting the drilling project decision – makers ought to assess the risk and environmental impact assessment.
Actual planner	Occidental company was the planner.	They ought to involve other key stakeholders in this case (for e.g. soil scientist, concerned ministry, local experts, experts from local drilling operation offices)
Who involved as experts	Occidental company contracted out the drilling works to Dewtech- a German company. They were worked as experts.	Local experts from domestic drilling operation projects, soil scientists, environmentalist, geologist, and petroleum engineer ought to be included in that case.
From where they seek guarantee	Occidental was overconfident about their previous success experience.	They ought to seek guarantee by addressing local, social, and environment justice properly.
Who may be affected without being involved	Local people, wild animals, local forest, ecosystem, biodiversity, and environment were directly affected.	As they were not involved with the system, they should not be affected by that incident.
What was the fate of the affected	Nobody considered anything about the affected people, environment, and ecosystem. At that time, they were only busy with calculating their own loss.	After that incident, the affected stakeholders, ecosystem, biodiversity, and environment ought to get top priority.

In the process of policy design, it is imperative to consider accountability and performance management frameworks, as they shape the comprehension and resolution of issues. In the context of the *Magurchara* gas blow-out incident, it becomes essential for the government to establish benchmarking standards for making contracts. Additionally, stakeholders' involvement and regular reviews and evaluations conducted by local experts should be integrated into the system.

#### IV. SUMMARY AND CONCLUSIONS

The notion of social and environmental justice transcends geographical boundaries, highlighting the interconnectedness of global issues (McIntyre, 2005). To forge a path toward a sustainable future, accountability must extend beyond the conventional triple bottom line accounting, encompassing a comprehensive spectrum of social, cultural, political, economic, and environmental accountability factors. This expanded perspective is essential for delineating and addressing issues at local, national, and international levels (McIntyre, 2005).

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The aftermath of the *Magurchara* gas blow-out incident underscored a confluence of managerial, legal, environmental, and human rights challenges. This catastrophe prompts several significant inquiries: did the compensation suffice to alleviate the extensive environmental, economic, and social damage, and what measures could have been taken to prevent such an occurrence? Notably, this disaster unfolded in a climate where heightened attention was focused on the environmental and human rights consequences of natural resource exploitation. Regrettably, the upstream sectors of these industries have been harmed by instances of severe environmental degradation and human rights violations.

Effective accountability is intrinsically linked to a democratic and participatory approach, where communication transcends a unilateral flow of information. Sincere accountability necessitates a dialogue, inherently involving two-way communication with citizens. Critical systemic thinking serves as a crucial tool for unravelling stakeholder values and comprehensively encompassing the social, political, economic, and environmental dimensions (McIntyre, 2005).

In conclusion, the imperative of applying critical systemic thinking in policy formulation and implementation is undeniable. By embracing this approach, accountability can be authentically advanced. The multifaceted nature of contemporary challenges demands an approach that integrates diverse perspectives and considers broader implications, fostering transparency, fairness, and sustainable progress. Employing Ulrich's critical systems heuristics beforehand can serve as a potential defence against confronting such challenges.

### ACKNOWLEDGMENT

The study was funded by the AusAID fellowship.

### DECLARATIONS

Competing Interests: The authors declare no conflict of interest.

### REFERENCES

- 1) Alam, M. S., Akter, S., Shemul, S., Chowdhury, T. R., & Ara, S. (2022). Assessing the quality and heavy metal contamination of soil in tea gardens around Magurchara gas blowout in Bangladesh using multivariate and soil quality index methods. *Journal of Hazardous Materials Advances*, 7, 100127. <https://doi.org/10.1016/j.hazadv.2022.100127>
- 2) Alamgir Hussain, M. (2015). *Evaluation of safety interventions in an oil and gas company*. Master's Thesis, Bangladesh University of Engineering and Technology.
- 3) Ball, R. (2009). Climate change and sustainable futures. *Systemic Practice and Action Research*, 22, 139-148. <https://doi.org/10.1007/s11213-009-9119-y>
- 4) Briggs, L. (2009). Contemporary Government Challenges: *Delivering performance and accountability and the intersections with 'wicked' policy problems*. accessed on 12 June 2020 on <<http://www.apsc.gov.au/media/briggs150709.htm>>
- 5) Deb, N. (2020). Corporate capitalism, environmental damage, and the rule of law: The Magurchara gas explosion in Bangladesh. *The Routledge handbook of green criminology*. Routledge. <https://doi.org/10.4324/9781315207094-20>
- 6) Elias, A. A. (2021). Kerala's innovations and flexibility for Covid-19 recovery: Storytelling using systems thinking. *Global Journal of Flexible Systems Management*, 22(Suppl 1), 33-43. <https://doi.org/10.1007/s40171-021-00268-8>
- 7) Islam, N. (2000). Protecting Bangladesh's environment: the role of the civil society. *Journal Of Social Studies Dhaka-*, 34-63.
- 8) Jackson, M. C. (2020). How we understand "complexity" makes a difference: Lessons from critical systems thinking and the Covid-19 pandemic in the UK. *Systems*, 8(4), 52. <https://doi.org/10.3390/systems8040052>
- 9) Khan, M. A. I., & Nasir, F. B. (2014). A Review over major gas blowouts in Bangladesh, their effects and the measures to prevent them in future. *Int. J. Sci Technol. Res*, 3, 109-113.
- 10) Maru, Y. T., & Woodford, K. (2001). Enhancing emancipatory systems methodologies for sustainable development. *Systemic Practice and Action Research*, 14, 61-77. <https://doi.org/10.1023/A:1009535710891>
- 11) McIntyre-Mills, J., & de Vries, D. (2009). How lemmings on wheels can make a u-turn through social inclusion and democracy. *Systemic Practice and Action Research*, 22, 173-200. <https://doi.org/10.1007/s11213-009-9121-4>
- 12) McIntyre, J. (2005). Part 1: Working and re-working the conceptual and geographical boundaries of governance and international relations. *Systemic practice and action research*, 18, 173-220. <https://doi.org/10.1007/s11213-005-4157-6>
- 13) McIntyre-Mills, J. (2008). New directions for social wellbeing through extending deliberative democracy to enhance representation. In *The history and future of social innovation conference*, Hawke Research Institute for Sustainable

## Sustainability Assessment of Economic and Environmental Impacts: A Critical Systems Thinking Approach to Tackle Complex Environmental Challenges

*Studies, University of South Australia, June 2008.*

- 14) Nguyen, L. K. N., Kumar, C., Jiang, B., & Zimmermann, N. (2023). Implementation of systems thinking in public policy: A systematic review. *Systems, 11*(2), 64. <https://doi.org/10.3390/systems11020064>
- 15) Siddiqui, J. (2001). Environmental non-accountability in Bangladesh?: The striking case of the magurchara gas field disaster. *Social and Environmental Accountability Journal, 21*(2), 12-13. <https://doi.org/10.1080/0969160X.2001.9651658>
- 16) Uddin, M. S., Mukul, S. A., Khan, M. A. S. A., Asif, C. A. A., & Alamgir, M. (2007). Comparative evaluation of co-management impacts in protected area: a case study from Lawachra National Park of Maulvibazar, Sylhet. *Journal of Forestry and Environment, 5*, 103-110.
- 17) Ulrich, W. (1983) *Critical Heuristics of Social Planning: a new approach to practical philosophy*. Haupt, Berlin.
- 18) Ulrich, W. (1993). Some difficulties of ecological thinking, considered from a critical systems perspective: a plea for critical holism. *SystemsPractice, 6*,583-611.<https://doi.org/10.1007/BF01059480>



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## Effect of Plyometric Training Model and the Age towards the Reaction Time and the Agility of Muaythai Athletes



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**ABSTRACT:** This research aims to determine: (1) the effect of upper body and lower body plyometric training models towards the reaction time and agility, (2) the differences in the effect of age (17-20 years old and 21-24 years old) towards the reaction time and agility, (3) the interaction between upper body plyometric, lower body plyometric training models, and age (17-20 years old and 21-24 years old) towards the reaction time and agility.

This research was an experimental study. The research design was a "2x2 factorial" design. The number of research samples were 20 muaythai athletes selected by purposive random sampling. To measure reaction time the researcher used the whole body reaction II test and to measure the agility used the Illinois agility test instrument. The data analysis used the MANOVA (multivariate analysis of variance) test with a significance level of 0.05.

The results of this research indicate that: (1) there is a difference in the effect of upper body and lower body plyometric training models towards the reaction time of Muaythai athletes with a p significance of  $0.000 < 0.05$ , and there is a difference in effect between upper body and lower body plyometric training models towards the agility of Muaythai athletes with a significance value of  $p 0.000 < 0.05$ . (2) There is a difference in the effect of age (17-20 years old and 21-24 years old) towards the reaction time with a significance value of  $p 0.002 < 0.05$ , and there is a difference in the effect of age (17-20 years old and 21-24 years old) towards the agility with a significance value of  $0.002 < 0.05$ . (3) There is a significant interaction between the upper body plyometric, lower body plyometric training models and age (17-20 years old and 21-24 years old) towards the reaction time with a significance value of  $0.002 < 0.05$ , and there is a significant interaction between the training models of upper body plyometric, lower body plyometric and age (17-20 years old and 21-24 years old) towards the agility with a significance value of  $0.001 < 0.05$ .

**KEYWORDS:** plyometric training model, age, reaction time, agility, muaythai

### INTRODUCTION

The general purpose of training is to help coaches, trainers, sports teachers to be able to apply and have conceptual abilities and skills to help reveal the potential of sportsmen to reach peak performance. The general target of training is to improve the ability and readiness of athletes to reach peak performance (Harsono, 2018: 3). Training is a systematic process of practicing/working which is carried out repeatedly, increasing the amount of training load every day. Muaythai is an empty-handed martial art that originated in Thailand. A Muaythai fighter generally attacks his opponent's head, body and legs using fists, elbows, knees and shins. Basically, Muaythai has a form of punch that is almost the same as the type of punch in boxing like European martial arts. Muaythai today is also popular with another name "Thai Boxing". Muaythai (Journal of Muaythai, Ori Immanuel Hutama, 2014) is a martial art originating from the Kingdom of Thailand.

In Muaythai there are several basic technical movements including punches, kicks, locks, and also slams. In coaching and sports achievements there are several things that are important aspects, according to Soeharsono, in Budhiono (2004: 255) including: 1) Sports aspects, related to physical problems, physical development, techniques, tactics, maturity to compete, coaches, training programs and evaluation, 2) Medical aspects, related to problems with the functioning of organs (heart, lungs, nerves, muscles, senses, and others), nutrition, injuries, and examinations, 3) Psychological aspects; related to problems of mental resilience, confidence, self-control, discipline and enthusiasm, pressure, perseverance and accuracy, and motivation.

Bompa, Tudor O & G. Gregory Haff (2009) explains "athletic is dominated by combinations of strength, speed, and endurance which are bimotor abilities". Which is where every performance produced in sports activities is dominated by biomotor



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components. According to Bomp (2015: 116), explains that variations in training and the selection of forms of training will keep athletes motivated and fresh in adapting to the various forms of training given. According to Harsono (2001: 1) that the physical condition in question is strength, endurance, flexibility, agility, reaction, speed, and power. According to Tirtawirya (2005:37), good skills consist of several combined aspects of biomotor components such as speed, endurance, and strength. So that the components of biomotor power, stamina, coordination, flexibility, balance, reaction and agility arise from the combination of basic biomotor components. Harsono (1988: 177) suggests that muscle strength is a very important component to improve overall physical condition. Aside from being a support for other biomotor factors, strength itself sometimes doesn't seem to be clearly used, but in fact every biomotor aspect is still influenced by strength.

Harsono (1988: 47) defines strength as an energy to fight against a resistance or the ability to generate tension or tension. According to Suharno (1985: 59) strength is the ability of the athlete's muscles to withstand loads with maximum strength and speed in one body movement. Explosive power or power according to Narlan & Juniar (2020: 87) there are two factors of physical condition that must support, namely maximum strength and speed, because when an athlete has the ability to make strong and fast movements it will produce high power (explosive power). Good. Based on observations that have been made in several muaythai gyms in Medan city and Simalungun district, several trainers have implemented forms of training models that are used to support and improve reaction time abilities that are more focused on athlete strokes such as exercises using dumbbells, wheelbarrows, push ups and pull ups, while to increase agility exercises are still carried out with simple forms of exercise and still seem like old forms of exercise and the lack of new variations of exercises that increase reaction time and agility skills performed in martial arts exercises.

Reaction time has benefits that greatly affect athletes and forms of training which can also increase muscle strength and capacity (Orsatto & Bezzer, 2020). Today, there are several demands that are not realized by coaches, including creating or developing several forms of training models that can be used to support better physical conditions of athletes and increase athlete performance in particular. With the existence of several problems in reaction time and agility in Muaythai athletes after observations, it is felt that it is necessary to develop and add several forms of training to increase reaction time and agility, therefore the authors will conduct a study entitled "The Effect of Plyometric Training Models and Age on Reaction Time and Agility in Muaythai Athletes".

### METHODS

This research is a form of experimental research. Sugiyono (2015: 107) states that experimental research is a research method used to seek the effect of a treatment on other people in controlled conditions. The design in this study used a 2x2 factorial experimental research design. The independent variable consists of the plyometric training model which consists of two training models namely upper body plyometric and lower body plyometric and the dependent variable consists of reaction time and agility with the manipulative variable being leg muscle strength.

The data analysis technique used in this research is the MANOVA statistical technique (multivariate analysis of variance) which is used to test the hypothesis of the influence of the independent variable with the comparative dependent variable of the sample average. The MANOVA test in this study used a 2x2 factorial design, which was used to test a sample average hypothesis if the researcher carried out a categorization step for the sample.

#### a. Normality test

The normality test used in this study is to use the chi-square formula. According to Sugiyono (2017: 239) states that the normality test is used to examine the normality of the variables studied whether the data is normally distributed or not. This is important because if the data for each variable is not normal, then hypothesis testing cannot use parametric statistics. The normality test is carried out using the chi-square formula. This is to find out whether an implementation is normal or not by calculating if the significant value is  $> 0.05$  then it is normal and if the significant value is  $< 0.05$  then it is not normal.

#### b. Homogeneity Test

Sujarweni (2015: 115) states that a group is said to be homogeneous if a significant value  $> 0.05$  is obtained and if the group is said to be non-homogeneous if the significant value is  $< 0.05$ . The homogeneity test process is carried out with the aim of knowing the similarity of variations and to test the data obtained from the existence of a homogeneous population. Making a decision with a significant value  $> 0.05$  is acceptable or significant.

#### c. Hypothesis testing

The steps involved in testing the hypothesis in this study were using MANOVA (multivariate analysis of variance). This is because the Manova test is a statistical calculation process in testing and calculating independent variable data that has been obtained in research. Ilhamzen (2013) MANOVA (multivariate analysis of variance) is a type of parametric statistical test that

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aims to determine whether there is an average difference between more than two sample groups. If there is an interaction, then the next test will be carried out, namely the tukey test to find out an interaction that occurs for each frequency.

### RESULTS AND DISCUSSION

#### A. Description of Research Data

The data on the results of this study are in the form of pretest data and post test data for reaction time and agility. The number of samples used in this study were 20 muaythai athletes. The process will take place in three stages. The first stage is to carry out group division based on age category and then carry out pretest reaction time and agility. The second stage of activity in this research is to do the treatment.

##### 1. Description of Research Data

The data on the results of this study are in the form of pretest data and post test data for reaction time and agility. The number of samples used in this study were 20 muaythai athletes. The process will take place in three stages. The first stage is to carry out group division based on age category and then carry out pretest reaction time and agility. The second stage of activity in this research is to do the treatment.

**Table 1. Results of statistical data on pre-test and post-test reaction time**

Exercise Models	Age	Statistics	Pre test	Post test
<i>Plyometric Upper Body</i>	21-24 years (A1B1)	Means	0.301	0.271
		SD	0.023	0.021
	17-20 years (A1B2)	Means	0.344	0.306
		SD	0.016	0.015
<i>Lower Body Plyometrics</i>	21-24 years old (A2B1)	Means	0.308	0.243
		SD	0.035	0.021
	17-20 years old (A2B2)	Means	0.353	0.268
		SD	0.019	0.014

**Table 2. The results of statistical descriptive data on pre-test and post-test agility athletes**

Exercise Models	Age	Statistics	Pre test	Post test
<i>Plyometric Upper Body</i>	21-24 years (A1B1)	Means	16.70	16,14
		SD	0.197	0.218
	17-20 years (A1B2)	Means	17,12	16,22
		SD	0.262	0.184
<i>Lower Body Plyometrics</i>	21-24 years old (A2B1)	Means	16.60	15,36
		SD	0.259	0.216
	17-20 years old (A2B2)	Means	16.89	15,44
		SD	0.288	0.466

#### 2. Prerequisite Test Results

##### a. Normality test

The data normality test used in this study was the Shapiro Wilk method. Analysis of data from the normality test results in each group using the SPSS software application with version 25 using a significance level of 5% (0.05). The normality test results are as follows;

**Table 3. Muaythai athlete reaction time normality test results**

Data	P	Sig	Information
<i>Reaction Time</i>	Pretest(A1B1)	0.902	Normal
	Post test(A1B1)	0.928	Normal
	Pretest(A1B2)	0.850	Normal

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	<i>Post test(A1B2)</i>	0.886		Normal
	<i>Pretest(A2B1)</i>	0.015		Normal
	<i>Post test(A2B1)</i>	0.829	0.05	Normal
	<i>Pretest(A2B2)</i>	0.811		Normal
	<i>Post test(A2B2)</i>	0.734		Normal

**Table 4. Results of the normality agility test for muaythai athletes**

Data	P	Sig	Information	
<b>Agility</b>	<i>Pretest(A1B1)</i>	0.195	Normal	
	<i>Post test(A1B1)</i>	0.478	Normal	
	<i>Pretest(A1B2)</i>	0.136	Normal	
	<i>Post test(A1B2)</i>	0.535	Normal	
	<i>Pretest(A2B1)</i>	0.251	0.05	Normal
	<i>Post test(A2B1)</i>	0.891	Normal	
	<i>Pretest(A2B2)</i>	0.914	Normal	
	<i>Post test(A2B2)</i>	0.423	Normal	

Based on statistical data analysis using the normality test using the Shapiro Wilk test method, reaction time data and agility data obtained the data normality test results at a significance value of  $p > 0.05$ , so it can be concluded that the reaction time and agility ability data in Muaythai athletes are normally distributed .

### b. Homogeneity Test

The prerequisite test that the researcher then carried out in this study was the homogeneity test which was used to test the samples in this study which had homogeneous variants (similarity) of data or did not have similar data. In the homogeneity test of this study was to use the SPSS levane test with version 25. The results of the homogeneity test of this study were as follows;

**Table 5. Homogeneity Test**

Sample Group		Levene Statistics	df1	df2	Sig.	Information
<i>Reaction Time</i>	<i>Pre-test</i>	.807	3	16	.508	Homogeneous
	<i>Post test</i>	.486	3	16	.697	Homogeneous
<i>Agility</i>	<i>Pre-test</i>	.391	3	16	.761	Homogeneous
	<i>Post test</i>	3,309	3	16	.047	Homogeneous

Based on the results of the data analysis output obtained in the table above using SPSS, the results of the data analysis for the reaction time group showed a pretest significance value of  $0.508 > 0.05$  and a post test significance value of  $0.697 > 0.05$ . In the results of the analysis of homogeneity test data in the agility group, a significance value was obtained at the pretest of  $0.761 > 0.05$  and a post test significance value of  $0.047 > 0.05$ , so from the results of the resulting data analysis, it can be concluded that the data groups used have the same variance or are homogeneous.

### 3. RESULTS OF HYPOTHESIS TESTING

The hypothesis test used in this study is based on data analysis to provide results and answers to the formulation of the problem using the MANOVA data analysis technique (multivariate analysis of variance). The description of the results of the hypothesis test is in accordance with what has been formulated as follows;

#### 1. Differences in the Effect of Plyometric Upper Body and Plyometric Lower Body Training Models on Reaction Time and Agility in Muaythai Athletes.

The first hypothesis reads "There is a significant difference in the effect between the upper body plyometric training model and the lower body plyometric training model on reaction time in Muaythai athletes". If the results of the analysis produce a difference in effect, plyometric upper body and lower body plyometric exercises have an effect on reaction time and agility in Muaythai athletes. Based on the data analysis shown in table 14 as follows:

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**Table 6.** The results of the Manova test differ the effect of upper body and lower body plyometric training models on reaction time and agility

Multivariate Tests <sup>a</sup>						
Effect		Value	F	Hypothesis df	Error df	Sig.
Model_ Plyometric	Pillai's Trace	.682	18.243 <sup>b</sup>	2.000	17.000	.000
	Wilks' Lambda	.318	18.243 <sup>b</sup>	2.000	17.000	.000
	Hotelling's Trace	2.146	18.243 <sup>b</sup>	2.000	17.000	.000
	Roy's Largest Root	2.146	18.243 <sup>b</sup>	2.000	17.000	.000

a. Design: Intercept + Model\_Plyometric

b. Exact statistic

Based on the results of output data analysis with the Manova test in table 15 with upper body plyometric and lower body plyometric training models on reaction time and agility in Muaythai athletes. Through the 4 stages of the test carried out, namely the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root tests, a significant p value of 0.000 < 0.05 can be drawn, so it can be concluded that there are differences in the influence of upper body plyometric and lower body plyometric training models on the ability of reaction time and agility in muaythai athletes.

The results of the analysis of the resulting data, for reaction time ability, the lower body plyometric training model gives a better effect when compared to the upper body plyometric training model with a mean value of 0.243 in the 21-24 year age group and a mean value of 0.268 in the 17 age group -20 years.

For agility abilities, the lower body plyometric training model gives a better effect when compared to the upper body plyometric training model with a mean value of 15.36 in the 21-24 year age group and a mean value of 15.44 in the 17-20 year age group. so that it can be concluded that "There are differences in the influence of upper body plyometric and lower body plyometric training modes on increasing reaction time and agility in Muaythai athletes".

2. Differences in Influence Between Age (21-24 years and 17-20 years) on Reaction Time and Agility in Muaythai Athletes.

The second hypothesis reads "There is a significant difference between age (21-24 years and 17-20 years) on reaction time and agility in Muaythai athletes". This can be seen in table 7 of data analysis as follows:

**Table 7.** Manova test results for differences in age (21-24 years and 17-20 years) on reaction time and agility

Multivariate Tests <sup>a</sup>						
Effect		Value	F	Hypothesis df	Error df	Sig.
Model_ Plyometric	Pillai's Trace	.682	18.243 <sup>b</sup>	2.000	17.000	.000
	Wilks' Lambda	.318	18.243 <sup>b</sup>	2.000	17.000	.000
	Hotelling's Trace	2.146	18.243 <sup>b</sup>	2.000	17.000	.000
	Roy's Largest Root	2.146	18.243 <sup>b</sup>	2.000	17.000	.000

a. Design: Intercept + Model\_Plyometric

b. Exact statistic

The output results of the Manova test data as described in table 7 yield values of 21-24 years and 17-20 years of age for reaction time and agility in Muay Thai athletes. Through the 4 stages of the test carried out, namely the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root tests, the resulting data for a significance value of p is 0.002 < 0.05. So it shows that there is a significant age difference based on the age group of the sample used. The results of the analysis of the reaction time data obtained a better value with a mean of 0.243 in the 21-24 year age group compared to the 17-20 year age group with a mean value of 0.268. Agility data analysis obtained better values with a mean of 15.36 compared to the 17-20 year age group with a mean value of 15.44.

3. Is There an Interaction Between Plyometric Upper Body, Lower Body Plyometric Training Models and Age (21-24 years and 17-20 years) Against Reaction Time and Agility in Muaythai Athletes

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In the third hypothesis which reads "There is an interaction between upper body plyometric, lower body plyometric training models and age (21-24 years and 17-20 years) on reaction time and agility in Muaythai athletes. The results of the analysis can be seen in table 8 as follows:

**Table 8. Interaction of upper body, lower body and age plyometric training models (21-24 years and 17-20 years) on reaction time and agility.**

<i>Source</i>		<i>Type III Sum of Squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
Model Latihan Plyometric dan Umur	<i>Reaction Time</i>	13.005	1	13.005	5.394	.002
	<i>Agility</i>	25.050	1	18.005	7.736	.001

Based on the results of the Manova test in table 8, the results of data analysis show that in reaction time the F value is 5.394 and the significance value of p is 0.002 <0.05, so from the results of the data analysis above it can be concluded that "There is an interaction between upper body plyometric training models, lower body plyometrics and age (17-20 years and 21-24 years) on reaction time in Muaythai athletes" has been proven. For the results of agility ability, an F value of 7,736 is obtained and a significance value of p is 0.001 <0.05, so from the results of the data analysis above it can be concluded that "There is an interaction between upper body plyometric training models, lower body plyometrics and age (17-20 years and 21-24 years) on agility in Muaythai athletes".

### B. Discussion of Research Results

Discussion of the results of data analysis in research will provide a continuous and further interpretation of the results of the data analysis previously described. Based on testing the hypothesis, it produces an analysis conclusion, namely: (1) There is a significant difference in the influence of the main factor groups in the study. (2) There is no significant interaction between the main factors in the form of existing two-factor interaction. For further discussion of the results of the analysis are presented further as follows;

#### 1. The Significant Effect of Plyometric Upper Body and Plyometric Lower Body Training Models on Reaction Time and Agility in Muaythai Athletes

Based on the results of the two-way analysis of variance data test which showed the results of the proposed hypothesis were proven by the conclusion that there was a significant difference in the effect of the plyometric upper body and plyometric lower body training models on reaction time and agility in Muaythai athletes. The resulting ability with an F value of 16.984 with a significance value of 0.001 <0.05, so it can be concluded that in reaction time there is a difference in the effect of upper body plyometric and lower body plyometric training on reaction time in Muaythai athletes. Whereas for the results of agility ability, the F value is 35.147 with a significance value of 0.001 <0.05,

In this study, the ability to react time showed that both models of plyometric training between the upper body model obtained an average value of 0.289 while the lower body model obtained an average value of 0.255 with the results of the analysis showing a difference of 0.034. Based on the difference in data obtained between upper body plyometric and lower body plyometric models, a conclusion can be drawn that upper body plyometric and lower body plyometric training models both provide an increase in reaction time with lower body plyometrics contributing a greater increase.

Whereas the results of data analysis on agility abilities show that the upper body plyometric training model obtained an average value of 16.18 and the lower body plyometric model obtained an average value of 15.40 with a data difference of 0.78, so that a conclusion can be drawn that the plyometric upper body and lower body plyometric training models both provide an increase in agility abilities in Muaythai athletes with the plyometric lower body training model providing a more significant effect.

The results of previous research (Campillo, et al, 2022: 274) implementing the plyometric training model provided an increase in reaction time ability in athletes. (Chaudhry & Jadon, 2017) states that the provision of plyometric training models provides a stimulus as well as a significant increase in agility results. (Both & Mark, 2016) the plyometric lower body training model provides stimulation to the athlete's physical condition as well as reaction time and agility abilities. The results of several

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previous studies stated that in general, the lower body plyometric model will have a greater impact on the goal of increasing reaction time and agility.

### 2. Differences in Influence Between the Ages of 17-20 Years and 21-24 Years on Reaction Time and Agility in Muaythai Athletes

The results of the reaction time ability of muaythai athletes in this study showed that there was a significant difference in the effect of high leg muscle strength and low leg muscle strength on reaction time ability in muaythai athletes. Based on the results of data analysis using the Manova test, it was obtained that the significance value of  $p$  was  $0.002 < 0.05$ , so it can be concluded that there was a significant influence between the age groups 17-20 years and 21-24 years.

The results of the data analysis show that the average score for muaythai athletes who are 21-24 years old in reaction time is 0.257, while the average score for athletes who are 17-20 years old is 0.287 with a difference in value of 0.03, with the results of a small difference in data so that it can be concluded that there is a significant difference between the ages of 17-20 years and 21-24 years in the ability of reaction time in Muaythai athletes.

For the agility ability of muaythai athletes, a significance value of 0.002 was obtained  $> 0.05$ , so it can be concluded that there is a significant difference in the influence of athletes in the age group 17-20 years and 21-24 years on agility in muaythai athletes. Based on the results of data analysis which showed that the average value of athletes in the age group of 17-20 years for agility abilities obtained a value of 15.75, while for the average value of athletes in the age group of 21-24 years the average value was obtained 15.83 with a difference in value of 0.08.

The results of previous studies from (Hidayat, et al, 2021), (Akbar, et al, 2021), suggest that there are differences in the results for athletes who have significantly different age ranges. (Isnanto, 2021), (Mawarni, 2021), argues that athletes who have a more mature age are significantly more mature than athletes who are relatively old for increased abilities and physical conditions. In accordance with the results of previous studies that in this study there was a significant difference between the ages of 17-20 years and 21-24 years in the reaction time of agility abilities in Muaythai athletes.

### 3. Interaction Between Plyometric Upper Body, Lower Body Plyometric Training Models and Age (Adults and Youth) Against Reaction Time and Agility in Muaythai Athletes

Based on the results of the analysis of research data on the reaction time ability of Muaythai athletes, the hypothesis is that there is a significant interaction between plyometric upper body, plyometric lower body and age (17-20 years and 21-24 years) on reaction time ability in Muaythai athletes and the hypothesis on agility ability which reads that there is no significant interaction between upper body plyometric, lower body plyometric and age (17-20 years and 21-24 years) on agility ability in Muaythai athletes.

In this study, the results of the interaction between paired group factors showed that there was no interaction between upper body, lower body plyometric training models and age (17-20 years and 21-24 years) on reaction time and agility. This is because there is a significant value for reaction time of  $0.002 < 0.05$  and a significance result for agility of  $0.001 < 0.05$  so it can be concluded that there is an interaction between upper body, lower body plyometric training models and age (17-20 years and 21-24 years) on reaction time and agility in muaythai athletes.

## CONCLUSION

Based on the results of the research data analysis above that has been carried out, by researchers, the following research conclusions can be drawn: (1) There is a significant influence between upper body and lower body plyometric training models on reaction time and agility in Muaythai athletes, from the results of data analysis obtained the  $F$  value is 16.284 with a significance value of  $0.001 < 0.05$ , in the upper plyometric training model body obtained a pretest value of 0.301 and a post test of 0.271 while in the lower body plyometric training model a pretest value of 0.308 was obtained and a post test value of 0.243. For the agility ability of muaythai athletes, from the results of data analysis the  $F$  value was 35.147 and the significance value was  $0.001 < 0.05$ . In the upper body plyometric training model, the pretest value is 16.70 and the post test value is 16. (2) There is a significant difference between age (17-20 years and 21-24 years) in reaction time ability in Muaythai athletes, with the results of data analysis obtained an  $F$  value of 13.171 and a significance value of  $0.002 < 0.05$ . And there is a significant influence between age (17-20 years and 21-24 years) on agility abilities in Muaythai athletes with the results of data analysis with an  $F$  value of 0.380 and a significance value of  $0.002 > 0.05$  so it can be concluded that there is a significant influence significant relationship between high leg muscle strength and low leg muscle strength on agility in muaythai athletes. (3) There is a significant interaction between upper body plyometric, lower body plyometric training models and age (17-20 years and 21-24 years) on reaction time. The results of the data analysis were obtained at the reaction time which showed a significance value of  $0.002 < 0.05$ . And there is a significant interaction between upper body plyometric, lower body plyometric training models and age (17-20 years and 21-24 years) on agility. By obtaining the value of the results of data analysis with a significance value of 0.001

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<0.05, it can be concluded that there is a significant interaction between upper body plyometric training models, lower body plyometrics and age (17-20 years and 21-24 years) low on agility.

### REFERENCES

- 1) Akhmad, I., Supriadi, A., Dewi, R., & Swara, D. (2018). Pengaruh Pelatihan SAQ Terhadap Kecepatan dan Kelincahan Atlet Muda di X-Trail 14. Medan: Jurnal Sains dan Penelitian Internasional (IJSR).
- 2) Ahyar, H., Maret, U. S., Andriani, H., Sukmana, D. J., & Mada, U. G. (2020). *Buku Metode Penelitian Kualitatif & Kuantitatif* (H. Abdi (ed); Issue April). CV. Pustaka Ilmu.
- 3) Azmi, K & Kusnanik, N. W. (2018). *Effect of exercise program speed, agility, and quickness (SAQ) in improving speed, agility, and acceleration. Journal of Physics*. No. 947.
- 4) Bafirman, H. B., & Wahyuni, A.S. (2019). *Pembentukan Kondisi Fisik*. Depok: Raja Grafindo Persada.
- 5) Bazylar, C. D., Abbott, H. A., Bellon, C. R., Taber, C. B., & Stone, M. H. (2015). *Strength Training for Endurance Athletes. Strength and Conditioning Journal*, 37(2), 112. doi:10.1519/ssc.0000000000000131.
- 6) Bompa, T. O., & Carrera, M. (2015). *Conditioning young athletes. Champaign : Human Kinetic*.
- 7) Bompa, T. O. & Buzzichelli, C.A. (2018). *Periodization: Theory and methodology of training (6<sup>th</sup> ed)*. Champaign, IL; Human Kinetics.
- 8) Bompa, . O. (1994). *Theory and methodology of training*. Toronto: Kendall/ Hunt Publishing Company.
- 9) Bompa, T. O., & Haff, G. (2019). *Periodization theory and methodology of training*. USA: Sheridan Books.
- 10) Booth, A. M., Rhonda, O. (2016). *Effects of Plyometrics Training on Sports Performance*. University of Sydney, Australia.
- 11) Budiwanto Setyo, 2012. *Metodologi Latihan Olahraga*. Malang.
- 12) Breamaker, M.D. (2013). *Pylofex: Plyometrics and flexibility training for explosive martial arts kicks and performance sports*. Turtle Press Washington DC.
- 13) Cahyadi, M., Pudjianto, D., & Arwin, A. (2018). *Pengaruh Latihan Plyometric di Pasir Terhadap Power Otot Tungkai Siswi di SMKN 1 Kota Bengkulu Tahun 2017/2018*. Kinestetik: Jurnal Ilmiah Pendidikan, 2(1), 67-74.
- 14) Chu, D. A. P., & Myer, G. D. P. (2013). *Plyometrics (Heather Healy and Cynthia McEntire (ed.))*. Human Kinetics.
- 15) Delavier, F. (2015). *Strength Training Anatomy, Journal of Human Kinetics*.
- 16) Davies, G., Riemann, B. L., & Manske, R. (2015). *Current concepts pf plyometric exercise. Internasional Journal of Sports Phsyical Therapy*, 10(6), 760.
- 17) Danardono (2012) *Perbedaan pengaruh program latihan berbeban dan plyometrics terhadap peningkatan kime atlet karate dalam bermain kata ditinjau dari kekuatan otot tungkai* (studi eksperimen pada atlet karate di unit kegiatan mahasiswa karate inkai Universitas Negeri Yogyakarta).
- 18) Emral, E. (2017). *Pengantar Teori dan Metodologi Pelatihan Fisik*. Depok. Penerbit Kencana.
- 19) Faisal, A. D, Imam, H. Purnami, S. (2019). *Pengaruh Latihan Speed Ladder Terhadap Peningkatan Kelincahan*. *Indonesia Performance Jurnal*. 3(1), 33-38).
- 20) Garlock, S. (2013). Concepts of plyometric exercise. Retrieved from <http://www.prorehabpc.com> /...concepts-of-plyometric.
- 21) Hansen, D., Kennelly, S. (2017). *Plyometric Anatomy*. United States of America: Human Kinetics.
- 22) Harmandeep, S., Satinder, K., Amita, R., & Anupriya, S. (2015). *Effecta of Six Week Plyometrics on Vertical Jumping Ability of Volleyball Players*. *Research Journal of Phsyical Education Sciences ISSN Res. J. Physical Education*, 3(4), 2320-9011.
- 23) Harsono. (2015). *Kepelatihan Olahraga: Teori dan Metodologi*. Bandung: PT. Remaja Rosdakarya.
- 24) Hasyim, & Saharullah. (2019). *Dasar-Dasar Ilmu Kepelatihan* (Cetakan Pertama). Badan Penerbit Universitas Negeri Makassar.
- 25) Hidayat, R. A. (2021). *Pengaruh Latihan Ladder Drill dan Hurdle Drill Terhadap Kelincahan dan V02max Ditinjau Dari Daya Tahan Otot Tungkai Pada Atlet Bulutangkis*. Univesitas Negeri Yogyakarta.
- 26) Irianto, D. P. (2017). *Dasar-dasar latihan olahraga untuk menjadi atlet juara*. Yogyakarta : Pohon Cahaya .
- 27) Irianto, D. P. (2018). *Dasar Kepelatihan*. Bantul; Pohon Cahaya.
- 28) Jakni. (2016). *Metofologi Penelitian Eksperimen Bidang Pendidikan*. Bandung: Alfabeta.
- 29) Johnson B.A., C.L., S., & D.A., S. (2011). *A systematic review: Plyometric training programs for young children*. *In Journal of Strength and Conditioning Research*.
- 30) Jurna Ilmu Keolahragaan, Fakultas Ilmu Keolahragaan, UNIMED. 13(1). 2014.

## Effect of Plyometric Training Model and the Age towards the Reaction Time and the Agility of Muaythai Athletes

- 31) Lievens, M., Bourgois, J., & Boone, J. (2020). *Periodization of plyometric: is there an optimal overload principle*. *Journal of medicine and science sport*, 19,413-417.
- 32) Lumintuarso, R. (2013). *Pembinaan Multilateral Bagi Atlet Pemula*. Yogyakarta; UNY Press.
- 33) MacDonald, C. J. (2013). *Plyometrics improve performance? The truth (guide to plyometrics) feeds*. Retrieved June 11, 2015 from <http://thicksolidtight.me.web>
- 34) Nasruloh, A., Prasetyo, Y., Apriyanto, K. D. (2018). *Dasar-dasar Latihan Beban*. Yogyakarta: UNY Press.
- 35) Pomatahu, A. R. (2018). *Box Jumpa, Depth Jump Sprint, Power Tungkai Pada Cabang Olahraga Pencak Silat*. 55.
- 36) Pratama Dwi Rizki (2018) *Pengaruh latihan plyometrics front jump dan single leg bound terhadap peningkatan power tungkai atlet pencak silat merpati putri SMA negeri 6 Cirebon*.
- 37) Samodra, Y. T. J.(2021). *Analisis Kesamaan Antara Kekuatan Tungkai dan Togok*. *Musamus Journal of Physical Education and Sport*, 3(02), 116-124
- 38) Shenoy, K. B. (2019). *Effect of Plyometrics and Plyometrics Combined With Dynamic Streching on Vertical Jump in Male Collegiate Volleyball Players* 8(1).
- 39) Silva, A. F, Clemente, F. M. (2019). *Effect of Plyometric Training in Volley Ball in Sistematics*. *Journal Internasional. Environmental and Public Health Research*.
- 40) Sihombing, P. (2021). *Pengaruh Metode Latihan Core Strength and Stability dan Plyometric Terhadap Power Ditinjau Dari Kekuatan Pemain Sepak Bola UNY Yogyakarta*.
- 41) Singh, A. (2017). *Comparative study of agility, reaction time, strength and flexibility measures of volleyball and basketball players*. *Internasional Journal of Physiology, Nutrition and Physical Education*. Vol. 2, 270-272.
- 42) Sugiyono. (2015). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- 43) Suharjana. (2018). *Latihan beban untuk kebugaran kesehatan dan performa atlet*. Yogyakarta: Pohon Cahaya.
- 44) Sukadiyanto. (2010). *Pengantar Teori Dan Metodologi Melatih Fisik*. Bandung: CV Lubuk Agung.
- 45) Susilawati, D. (2018). *Tes dan Pengukuran*. UPI. Sumedang Press.
- 46) Sumarsono, A. (2017). *Pengaruh Metode Latihan Agility Hurdle Drill dan Agility Leader Terhadap Koordinasi Kaki Anggota UKM Futsal Universitas Musamus Merauke*. *Jurnal Pengaruh Metode Latihan (Volume 6: 1)*. Halaman 4..
- 47) Tirtawirya, D. (2005). *Metode Latihan Teknik dan Taktik Taekwondo*. Yogyakarta: Jurusan Kepeleatihan Olahraga UNY.
- 48) Uzor, T. N & Emeahara, G. O. (2017). *Effetcs Lower and Upper Body Plyometric Training on Cardiovascular Variavles of Athletes*. *Department of Human Kinetics and Health Education, Awka*.
- 49) Walker, B. (2014). *Plyometric workouts and plyometrics exercises use plyometric exercises to develop maximum power and strength for your favorite sport*. Retrieved from <http://www.injuryfix.com/archives/plyometrics>.
- 50) Wiyarto, G. (2015). *Panduan Olahraga Untuk Kesehatan dan Kebugaran*. Yogyakarta: Graha Ilmu.
- 51) Widoyoko, S. E. (2017). *Evaluasi Program Pelatihan*. Yogyakarta: Pustaka Pelajar.
- 52) Yudhistira, D. (2021). *Modifikasi Model Latihan Plyometric Upper Body dan Lower Body Untuk Atlet Karate Junior*. Yogyakarta: UNY Press.



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## Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi



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**ABSTRACT:** Urban land acquisition and development in Ghana is a difficult process, involving the navigation of complex land tenure systems, dealing with inadequate documentation, high costs, and resolving disputes over land ownership. These challenges make the process extremely time-consuming. This study aims to analyse existing practices in urban land acquisition and development procedures, and establish the strengths and weaknesses of urban land acquisition in Kumasi. The essence is to improve urban land acquisition and development in Kumasi and the rest of the country. The study employed the use of semistructured interviews with experts on the subject matter who were purposively selected for primary data collection. The study also depended on scholarly articles, policy documents, and research papers for its secondary data. The findings indicate that some of the challenges in urban land acquisition and development included expensive procedures, improper record keeping, overlapping bureaucracies, unqualified or untrained middlemen, lack of transparency and accountability, and delays in permit approvals among others. It revealed some strengths, which included spelt-out procedures, the availability of governing laws for land acquisition and development, and established agencies for the management of land issues. It is recommended that strict enforcement of laws, proper record keeping, merger of some functions, provision of adequate resources for field officials, and an online tracking system should be in place

### 1.0 INTRODUCTION

The concept of land has been treated in diverse ways in response to the context, circumstance, and purpose of the analytical beholder. At the instance of development in a city, land refers to the specific area of the earth's surface with clearly delineated boundaries and owners (Qadeer, 2016). It is, however, finite and therefore restricted in supply (Qadeer, 2016). The total surface of the earth is estimated to be 510 million square kilometres. Of this, the oceans and other attendant bodies, cover as much as 71 percent amounting to 361 square kilometres. The rest, 149 million square (29 percent) is made up of the solid tangible surface (NettZero, 2023). Land is important and central to the sustenance of every aspect of humanity and as such constitutes the fundamental anchor to all the life support activities on planet Earth (Qadeer, 2016). It has the potential and capacity for alternative uses. The civilization of humanity has its origin in land use (World Bank, 2013). Whilst governments acquire land for the development of social, economic, and technical infrastructure, civic and cultural facilities, individuals, families, and firms do so for residential, commercial, industrial, and recreational functions (IFAD, 2008).

Access, acquisition, use and control of land have to do with the land tenure that pertains to the particular entity. Land tenure refers to the rules and regulations that define how access is granted to the right to use, control, and transfer land as well as attendant responsibilities and restraints (Agarwal et al., 1996) (IFAD, 2008). There are benefits to the acquisition and ownership of land. According to Ibbotson & Siegel (1984), investors are attracted to land because it is a stock of wealth since its value appreciates over time. It is immovable and cannot be easily destroyed. It offers income-earning opportunities through resale or lease.

In cities, the population concentration and the restricted supply of land bring about high demand and prices. The primary economic advantage of land is its scarcity (Amanor, 2010). In advanced economies, especially where the free market prevails, land acquisition is quite simple through commodification. It is traded in as good by adhering to transparent laid down guidelines. In the developing world, more so in the ex-colonial nations, the situation is complex, making land acquisition a daunting task (Gyamera et al., 2016). Land acquisition in Ghana is greatly contentious (Ofori, 2020) and has caused rivalry among many groups (Danso & Manu, 2013), even among chiefs, landowners, government and non-governmental organizations which has overloaded the courts with litigation

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and invariably slowed down socio-economic development in Ghana (Mintah et al., 2021). The objectives of the study are (i) to analyze existing practices in urban land acquisition and development procedures, (ii) to establish strengths (opportunities) in urban land acquisition, and (iii) to establish weaknesses (constraints) in urban land acquisition.

### **2.0 OVERVIEW OF LAND**

#### **2.1 Overview of land acquisition**

Human beings depend on land as a physical and natural resource. This is because it is an essential factor in the production of food, the support of plant and animal life and the provision of shelter to name a few (Ofori, 2020). Every part of our lives is supported by the land, which also serves as the basis of our society and economy and provides essential lifesupport systems. The value of land as a production element cannot be overstated. Everything we use ultimately comes from the land. Land is a commodity that is a major source of wealth and power, as well as an object of political action (Christophers & Christophers, 2023).

In Europe, only 4.4% of workers are employed in agriculture, and only a small percentage of individuals rely on access to land to support their livelihoods. Furthermore, it is claimed that the legal anomalies typical of the Global South do not occur there to the same extent because of an institutional structure that covers everything from land registries to dispute control procedures (Bunkus & Theesfeld, 2018). Is the word "land grabbing" in the context of wealthy nations misleading or are there some parallels given that there are so many different connotations? Land grabbing in Europe is presented as a fact in the research "Extent of Farmland Grabbing" and is quantified by "the extent of foreign ownership of land, the capturing of control over extended tracts of land, and by the irregularities that have accompanied various land transactions". The report contends that wider structural changes in the European Union (EU) agriculture must be taken into account when evaluating the effects of farmland grabbing (Matthews, 2021). In addition, Matthews (2021) concluded that European farmland grabbing would be less common than similar practices in Africa or Asia. Based on a number of sources, such as Land Matrix and anecdotal evidence, they present information about Romania, Bulgaria, Hungary, Poland,

Slovakia, the Czech Republic, Latvia, and Lithuania; all former members of the Soviet Union (Mukrimaa et al., 2016).

According to Chakravorty (2016), land acquisition, commonly referred to as eminent domain, is one of the most divisive issues in India. The phrase "biggest problem" has been used frequently by politicians and other decision-makers, which is telling that India suffers from a high level of inequality, corruption, poverty, and other issues. Whether or not it is India's biggest concern, it is undeniable that every segment of society is impacted, including farmers, industrialists, home buyers, slum dwellers, the left, the right, and all intermediate ideological or opportunistic political players (Singh, 2016). A national land acquisition law that had been in use for over a century (starting in 1894, during colonial India) was replaced by a new law in 2013, which the party that won the national election in 2014 almost immediately sought to replace - unsuccessfully, so far (Chakravorty, 2016). Chakravorty (2016) asserts that the issue is so contentious and important in terms of politics that it toppled at least one state government (in West Bengal) that had been in power for 34 years in a row.

In Latin American nations, the urban land market and land policies have not been able to: (i) facilitate the widespread access to land of the urban poor, who make up more than 50% of the total population in cities; and (ii) impede the escalation of urban structural issues, particularly urban sprawl, excessive centrality, and residential segregation (Sabatini & Jordán, 1986). As a result, it is now crucial to develop urban land policies that has more public involvement in the land market than is currently the case in the nations of the region. According to Sabatini & Jordán (1986), these regulations ought to be designed to provide land at affordable costs, especially for the most often needed uses, to ensure sensible land use in conformity with urban development plans, and to counteract the rampant speculation so common in Latin American cities.

The laws governing public land acquisition are quite important in this regard. There haven't been many notable instances of public land acquisition in Latin America. The strongest contributors to this are the existence of powerful vested interests in the real estate sector, increased social pressure to purchase land, inadequate administrative and planning skills of the government, political unpredictability, and ongoing public funding shortage (Gómez, 2014). There have been very few instances of public land acquisitions that are noteworthy due to their size, the creation of "land banks," and the employment of expropriation laws. These instances have only occurred in situations where the aforementioned challenges have been partially surmounted. These events were more rare during the previous 10 to 15 years as a result of liberalism's ascendancy and the resultant reduction of the State's function to a supporting one (Sabatini & Jordán, 1986).

##### **2.1.1 Land acquisition in Ghana**

Land is governed by a combination of customs, market forces, and state regulations (Obeng-Odoom, 2014). In Ghana, there are four different types of land interests that exist according to section 19 of the Land Title Registration Law. There is no land without

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indigenous community ownership, which is a key tenet of land ownership in Ghana (Larbi et al., 2004). The majority of land is owned by clans, families, and the traditional authority, that is, the stool or skin (King & Sumbo, 2015). About 78 percent of the lands are owned by these traditional authorities, 20 percent are owned by the government, and the remaining 2 percent is split between the government and the traditional leaders (Larbi, 2008).

One of the most contentious modern development challenges is land acquisition (Ofori, 2020). Due to a number of pressures, such as population growth, land is becoming increasingly scarce in many places (Toulmin et al., 2004), and these have caused more rivalry in land issues among many groups, including urban elites, foreign investors, and varied land users (Danso & Manu, 2013). Due to numerous transactions, various unofficial fees, needless bureaucracies, the use of incompetent middlemen, a lack of transparency, and other issues, purchasing land in Ghana is a difficult process (Ameyaw & de Vries, 2021).

Conflicts between chiefs, landowners, government organizations, private real estate developers, and multinational corporations stem from increased rivalry for land in African towns. In Ghana, there are numerous issues with land acquisition, particularly in urban and peri-urban areas. As of 2002, there were reportedly over 60,000 land cases pending in court (Mintah et al., 2021). As a result, the courts have had to devote more of their time to handling several disputes involving conflicting land claims (Obeng-Odoom, 2016). The Greater Accra Region alone is reported to have about 15,000 land cases pending before the courts, 9,214 land cases were pending in the High Court of Kumasi as of 2002, which is an increase of 18% from 1997 when land cases made up 46% of all cases (Crook, 2004). These instances clearly demonstrate how risky land acquisition is in Ghana. Land acquirers in Ghanaian urban centres face a significant risk of protracted litigation or financial loss since the sellers may be unable to transfer the necessary legal title to the buyers (Awaworyi Churchill, 2020). Due to the lack of security, there is an increasing number of land guards (such as ex-soldiers) who are hired on a private basis to guard or defend someone else's land from competing interests. It is difficult to determine the exact number of land guards employed, but it is generally accepted that the occupation is expanding and increasingly riskier (Bansah, 2019). The threat posed by the land guard "is beginning to eat deeply into the fundamental fabric of our society," according to the former minister in charge of interior or internal security (Obeng-Odoom, 2014).

### **2.2 Overview of land development in Ghana**

After the acquisition of land, one of the very key components in the development procedure is the approval of the planning scheme by the Town and Country Planning Department as well as the issuance of a building permit. The issuance of development permits by District, Municipal, and Metropolitan Authorities is a procedural step taken to ensure that community growth in a certain location or jurisdiction is managed and carried out according to plan (Botchway et al., 2014). By issuing building licenses, District, Municipal, and Metropolitan Authorities can ensure that the growth of communities within a given region or authority is controlled and carried out according to plan (Kasanga & Kotey, 2001). It is noteworthy that several infrastructure and developments in the district, municipal, and metropolitan communities proceed without authorization from the statutory agencies (Poku-Boansi et al., 2020). This has led to unplanned building structure placement, use of unapproved drawings, construction on waterways, etc. in the city and other urban areas across the nation (Obeng-Odoom, 2014). Communities have become very chaotic as a result of people's ignorance of these legislative laws and restrictions. Ignorance of these statutory rules and regulations has caused a lot of disorder in communities. According to

Botchway et al., (2014), Otumfuo Osei Tutu II, the Asantehene (traditional ruler of the Ashanti Kingdom), expressed concern at the rapid rate at which unauthorized and unplanned structures were sprouting up in some parts of the city during one of his periodic inspection of Kumasi Metropolis. This shows how the growth of certain communities is not in accordance with the desired city or town layout.

Other researchers have not tackled the theories and concepts of land acquisition. Research has been conducted on the challenges associated with land acquisition itself but only a few delved into the acquisition process. Against this background, this paper analyses the associated challenges of urban land acquisition and development procedures in Ghana with reference to Kumasi as well as the concepts and theories underlying land acquisition.

### **2.3 Concepts and theories of land tenure systems**

The Food and Agricultural Organization (FAO), defined the land tenure system as a system that governs how access is provided to the use, control, and transfer of the land as well as its related obligations (Ndersen, 2005). Ghana has a synchronized operation of both the statutory and customary land tenure systems. Three different land tenure systems are recognized by the Republic of Ghana's Constitution from 1992. These include freehold private lands, public lands and customary lands. Nonetheless, section 2(1) of the (National Land Policy of Ghana, 1999) divides them into two broad categories: public or state lands and private lands. The traditional societies known as Tribes, Clans, or Families are the owners and managers of the customary lands. According to article 267 of Ghana's 1992 constitution, chiefs and family heads are the caretakers of such lands, and they have the power to enforce rights and obligations to the land that has been bestowed to them. This system can be used in rural, peri-urban and urban

## Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi

areas. Apart from lands obtained through legal declaration, ordinances, statutory processes, or international treaties, the state generally does not possess any land (Kuntu-Mensah, 2006). Since the constitution does not limit the amount of land that may be bought, both Ghanaians and non-citizens of Ghana may purchase land in any quantity. No interest in or right over, any land in Ghana shall be created which vests in a person who is not a citizen of Ghana, a freehold interest in any land in Ghana. Non-citizens of Ghana are not entitled to freehold interest in any land in Ghana but a lease of not more than fifty (50) years is recommended. However, Ghanaians can acquire lands on freehold interest or leasehold basis not exceeding ninety-nine (99) years subject to renewal for a further term.

There are policies and theories underlying land acquisition. These policies and theories pertaining to land have an impact on the development of cadastral systems and how land is administered. The arguments for and against these hypotheses seem to fall into two categories (Table 1). The first is the replacement theory. The replacement theorists advocates replacing existing, uncodified traditional land rights with titles that may include communal freehold titles or records, individual freehold titles or records, or limited real rights titles or records, to maintain tenure stability (Peters, 2009). As a result, titling delineates the ownership of property between private parties and larger communities. Titling and registration are viewed by replacement theorists as the way of resolving Africa's issues with land management and administration. This is thought to encourage profitable land development, expand lending options, and advance the growth of real estate markets. Arko-adjei (2011) summarizes the logic behind the replacement theory as; (i) customary tenure structures prioritize group rights above individual rights, which make individual tenure uncertain, (ii) customary rights are unalienable and do not encourage investment, thus they inhibit progress and development (iii) common property in customary tenure is a relic of a former order that will probably fade away in the future.

**Table 1: Theories of Land Acquisition and their indicators**

Theory	Possible Indicator
Conservative	<ul style="list-style-type: none"> <li>• Protection of customary tenure.</li> <li>• Generally, African's view of land.</li> <li>• Traditional authorities' importance in land management.</li> </ul>
Democratic Adaptation	<ul style="list-style-type: none"> <li>• Recognizing and defining legal, already existent land rights.</li> <li>• Enhancing democracy, accountability, and gender balance.</li> <li>• Building on current customary procedures.</li> </ul>
Hybrid Adaptation	<ul style="list-style-type: none"> <li>• A hybrid of statute and common law rules.</li> <li>• Communities select which rights are documented using a participatory approach.</li> </ul>
Incremental Adaptation	<ul style="list-style-type: none"> <li>• Titles are a long-term goal.</li> <li>• Off-register, extra-legal accepted as lawful.</li> <li>• Arbitrary titling based on demand.</li> </ul>
Incremental Replacement	<ul style="list-style-type: none"> <li>• The goal is to have titles.</li> <li>• The tenure security offered by customary tenure is adequate.</li> <li>• Legal acceptance of customary tenure and decision-making procedures.</li> </ul>
Evolutionary Replacement	<ul style="list-style-type: none"> <li>• Land rights develop naturally in the direction of individualisation.</li> <li>• Titles are very necessary for tenure security.</li> </ul>
Collective Replacement	<ul style="list-style-type: none"> <li>• Nationalisation of all land and communal farming communities.</li> <li>• Distribution of resources and services on equitable basis.</li> <li>• Traditional leadership is becoming more democratic.</li> <li>• Increased productivity and independence.</li> </ul>
Systematic Titling	<ul style="list-style-type: none"> <li>• Titles are very necessary for tenure security.</li> <li>• Titling promotes economic growth.</li> <li>• It is necessary to replace customary tenure.</li> </ul>

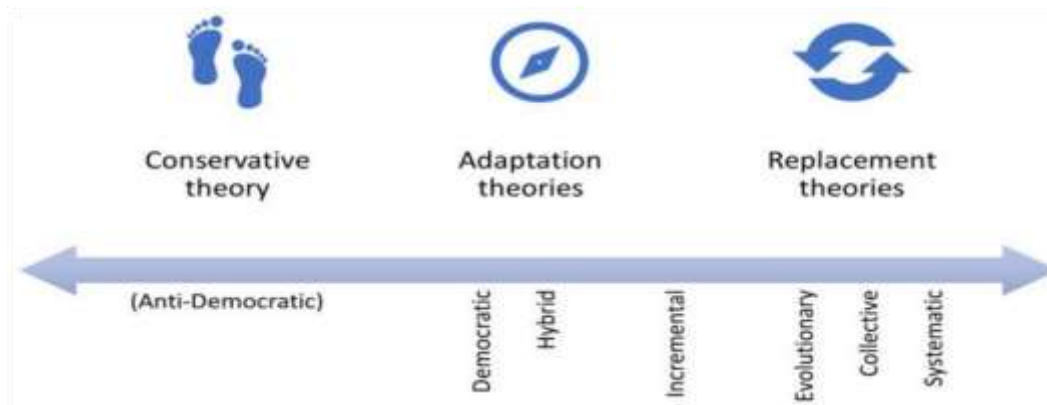
(Source: Hull et al, 2019)

The second is the Conservative theory. Living customary tenure, according to conservative ideology, offers enough tenure security because "land operates as a social, political, and economic relationship amongst related groups." This point of view derives from a generally

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African perspective of the multi-functional and multi-generational concept of land, which forms the basis of socio-economic, religious, and political systems. These customary tenure structures in Africa are founded on social legitimacy established through relatives and ethnicity (Lagopoulos, 2018). Land title undermines the social fabric of rural African communities, thus land titling efforts in these situations can be unsuccessful (Peters, 2009). Due to the significant influence of traditional authorities on land distribution and management, traditional authorities play a major role in conservative thought. However, there can be an abuse of authority or inefficiency as land managers and bring about tenure insecurity. There should be a refrain from romanticizing claims about customary tenure systems, according to (Ubink, 2008) as these "systems can encounter difficulties of gender discrimination, or abuses of power by chiefs, traditional councils, shack lords, and community leaders." Between the replacement and conservative extremes lies a third school of thought which is the Adaptation theory. The adaptation theorists favour gradual modifications to the land tenure system or the introduction of hybrid tenure systems to meet local and shifting demands. This strategy, which Bruce (2014) refers to as "renovating" customary tenure systems, recognize the value of existing customary tenure systems while arguing that rather than more radical reforms, its "defects" can be fixed with "a certain bit of creative tinkering and fine-tuning (Hull et al., 2019).

These three schools are depicted in Figure 1, along with any internal differences.



**Figure 1: Three schools of land reform theories**

*(Source: Hull et al, 2019)*

According to Atilola (2013), systematic titling is a method of registering land where a defined area is gradually covered, resulting in the adjudication, survey, issuance of titles, and registration of all neighbouring parcels of land. This system is often started by the government or the relevant government body. Individual landowners have little or no control over the registration process. International development partners including the

World Bank, Food and Agriculture Organization of the UN (FAO), International Food Policy Research Institute (IFPRI), and Department for International Development, UK (DFID) typically support the originating nation or agency. Systematic land titling entails identifying all rights holders, legally recognizing all uses and rights, and providing choices for their delineation and documentation (Dwyer, 2015; UNCTAD et al., 2010). Through a single procedure of public education, title adjudication, surveying, or other means of identifying the parcels, creating unique parcel numbers, and issuing titles/certificates, Systematic Land Titling and Registration (SLTR) is a method of bringing all parcels of land in a defined area/jurisdiction into the formal system of land registration (Olutayo Oluwadare & Kufoniyi, 2019). With this method, all nearby landowners of such parcels of property are present as the boundaries of such parcels of land in a given region and the possessory rights of individuals, families, or corporate organizations are defined (Olutayo Oluwadare & Kufoniyi 2019). It seems the government of Ghana who owns 18 percent of the lands has not prioritised on systematic titling. This is, however, essential for politicosocio-economic development for which reason it is in power. This might be the main ingredient in resolving the numerous land cases in the courts in Ghana.

### 3.0 RESEARCH METHODS AND MATERIALS

This study is based on the associated challenges of urban land acquisition and the development procedures in Ghana, specifically Kumasi, as the study area. Ghana's total area is 238,539 km<sup>2</sup>. Ghana has a dual land-tenure system, which is run and administered in accordance with both statutory and customary laws. Traditional and customary rules and practices vary from one geographic location of Ghana to another. Separate regions of Ghana have different customary laws, which are recognized by the 1992 Constitution of Ghana under section 11.

This essay was written using data obtained from a range of sources. A review of pertinent and related literature on customary land ownership, management, and urban land use planning at the global and local levels served as the foundation for this study.

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The international literature review focused on research studies and articles on theories, concepts, and land use planning by academics and global development organizations. At the local level, there was also a review of previous research on topics such as land use planning, compulsory acquisitions, and traditional land ownership in Kumasi and other metropolitan areas of Ghana. Sections of the National Building Regulations of 1996 and 2018, and the 1992 Constitution of Ghana which deals with land management and administration were also extensively studied.

The basis of this study is dependent on semi-structured interviews with experts on the subject matter, as well as on secondary data. Key informant interviews were conducted in English and Twi (local dialect in Kumasi). This gave the interviewees a comfortable environment without any communication restrictions for expressing themselves. Subjects for the interviews were purposively chosen based on their roles in land acquisition processes, familiarity with land tenure, and participation in Kumasi Metropolis dispute or settlement processes. The informants were engaged in discussions on the challenges associated with the land acquisition of both customary and public lands for a planning scheme. The major informants included a handpicked number of chiefs, officials of the Lands Commission, Town and Country Planning, landowners, and developers in Kumasi.

### 4.0 RESULTS AND DISCUSSIONS.

#### 4.1 Land ownership and transfer in Kumasi.

Kumasi is Ashanti Region's political and administrative capital. The indigenous Asantes (Ashanti people) inhabit Kumasi and the entire Ashanti Region. Kumasi features a chieftaincy-based system of local government and land ownership. The Asantehene is the title that refers to the king of the Asantes. He is the occupant of the Golden Stool, a representation of absolute authority and the centre of Ashanti identity and values. The Asantehene is also the chief of the people of Kumasi (Kumasihene). He is Asante's foremost traditional, military and spiritual leader who wields power to oversee areas that belong to the Golden Stool.

##### 4.1.1 Acquisition of public lands.

Public lands are either state lands or vested lands. They are lands acquired by the state from customary landholders since the colonial era (Ansah, 2022). State lands can be acquired through gifts or donations from stools or skins or families, or through compulsory acquisition. Vested lands on the other hand are not acquired but are vested in the state. The state holds the legal title whereas the stool or family or skin holds the allodial title (Kasanga & Kotey, 2001). Article 257 (2) defines public lands to include: *"Any land which immediately before the coming into force of the 1992 constitution, was vested in the government of Ghana on behalf of, and in trust for, the people for the public services of Ghana, and any other land acquired in the public interest, for the purposes of the*

*Government of Ghana before, on or after that date."* Article 257 (1) of Ghana's constitution states that *"All public lands in Ghana shall be vested in the President on behalf of and in trust for, the people of Ghana"*.

With public lands, the state has absolute control over them. These are lands that the government has acquired through the use of eminent domain to carry out its administrative and development tasks but which previously belonged to the traditional or customary authorities (Ameyaw & de Vries, 2021). This group accounts for 18% of the total 20% of all lands that are managed and controlled by the government. Vested lands comprise the remaining 2% of the total. Despite the variations between public lands and vested lands, there is not much difference in the transactions involving the two types of land.

The government's designated institution, the Lands Commission, is responsible for managing all of these lands on the government's behalf as per Article 258 (1a) of the (1992 constitution of Ghana). Their functions and membership have been spelt out to them. To be able to own such lands, prospective land buyers would need to fulfil a number of requirements. To avoid being entangled in a land dispute that might take years to be resolved, a verification that the search plan is indeed for the parcel of land in question can be done by engaging the services of a certified surveyor or a registered member of the Ghana Institution of Surveyors (Gavu & Sarfo-Kantanka, 2014). Nonetheless, there are different procedures in acquiring the different types of lands.

In all, there are four different divisions in the lands commission, that is, the Public and Vested Land Management Division (PVLMD), the Land Registration Division (LTD), the Survey and Mapping Division (SMD) and the Land Valuation Division (LVD) that a prospective purchaser has to deal with (Appau, 2018).

Though there are clear procedures that one goes through to acquire public lands, there are some challenges that are associated with some of the stages of acquisition. The first key challenge with this process is the high cost associated with some of the stages. Due to multiple informal fees at various stages, the procedure has been criticized to be too expensive (Ameyaw & de Vries, 2021). Due to the largely manual nature of the process and the fact that interactions between clients and officials are rarely disclosed to other officials, some dishonest land officials abuse their positions to uphold the unethical practice of collecting unofficial funds from potential buyers before providing the required official services, even when clients have already paid all required fees (Ameyaw & Vries, 2020). This issue becomes most acute during the second phase of the purchase process, when customers

## Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi

interact with representatives from the several Lands Commission sections. Most clients end up paying unapproved fees to urge officials to perform their required duties; such as to search and produce findings on time.

The second key challenge is the poor record keeping of documents at the commission. Although large volumes of documents are within the commission's jurisdiction, records are kept manually thus occupying a lot of space, there are very few of these records present in the electronic system, particularly in freshly developing areas where land use planning may not have yet been implemented. Excessive amount of time is wasted in sorting out the existing documents when searching for some information. It might be incredibly challenging to manually search through thousands of other files in search of a certain paper file. Finding such data could be a difficult undertaking for officials and can take days to weeks. As said by one of the officials; *"We can sometimes spend like days looking for a particular file. The documents are so many"*. In many instances, this tiresome task is a demotivation for officials to initiate any search process. It is the view of this paper that the improper filing of documents is the second key challenge to the search process, and therefore the acquisition process. The third key challenge is that unnecessary bureaucracy are caused by institutional arrangements that are fragmented, coupled with the overlapping of functions. As a result of insufficient discussions and real-time coordination of actions among land institutional divisions, chaos is created within the institution that oversees the land administration. After a site plan is prepared by a qualified surveyor and approved by the director of surveys or the Regional Surveyor, an official search is conducted by the Lands Commission to know the status of the land whether it has been allocated or it is encumbered. After the official search by the Lands Commission (LC), another search is conducted by the Town and Country Planning Division. This is an overlap of function. It would have been reasonable to anticipate that a single search at the LC could be done, and that the results would also contain information from the Town and Country Planning Division. This is however not the case, clients have to interact with these institutions separately during the search which is a waste of time and money. There is also an inspection conducted by the PVLMD and the LVD. These functions may have been integrated to simplify the procedure but that is not the case. Other less evident operations, notably office administrative tasks, among the many divisions end up duplicating one other, which makes the acquisition process more difficult and time-consuming by adding needless bureaucracy and numerous unofficial costs.

Another challenge, the fourth, noted with the procedure that one has to go through in the acquisition of a public land is how much disorganized the process is. An instance is where a prospective purchaser would have to employ the services of a qualified surveyor to draw the site and cadastral plan for him or her before the official search is conducted. This process is attacked on the grounds that if the search outcome is unfavourable due to encumbrances on the land, the prospective investor incurs a loss. The fundamental reason this order is in place, though, is that the Lands Commission would find it very challenging, without such a strategy, to collect the documents on the specific parcel of property for the potential buyer. Since these lands are already managed by the commission and are required to have adequate records of lands within their jurisdiction, it is normally believed that this should not be the case.

The fifth and final challenge identified is the interference by unqualified or untrained middlemen parading as workers of the LC. These middlemen complicate the acquisition process. The researchers have noted that there are two categories of middlemen. The first group has an informal working relationship with the officials and charges exorbitant and illegal fees for the nefarious actions they engage in, under the pretext of speeding up the land acquisition process. This they do, in order to have enough money for both themselves and the officials who assist them in carrying out such deals. The second group consists of those who do not have any working relations with officials but have studied the working procedures and have taken advantage of the disorganised system to defraud prospective buyers.

The steps used to purchase public lands are depicted in Figure 2.



Figure 2: Procedures in the purchase of Public Lands (Researchers' construct)

#### 4.1.2 Acquisition of Customary Lands.

Customary lands are those that are held and administered by families, clans, or other social groups, and whose tenure and management are governed by long-standing customs and traditions (Fiadzigbey, 2006). In Ghana, the customary land sector is in charge of 80% of the country's landholdings. According to customary law, the chief is in charge of, after consulting his elders, legally alienating the customary lands under his control. Under customary law, the paramountcy, which holds the allodial title, is the first to possess ownership or control of the property. This is followed by divisional and sub chiefs, who are chosen by the paramount and hold "customary freehold," while the natives have a usufruct interest in the land (Yiri li, 2006). The hierarchy of customary land holdings is as follows: (i) the Paramount Chief - Allodial Owner, (ii) the Divisional Chief - Customary Freehold, (iii) the Sub-Chief - Customary Freehold, (iv) the Indigenes (Subjects) - Usufruct Interest

There have been numerous laws regarding the administration of stool land since independence. Some of which are; Lands Act, 1962 (Act 123), Article 164 (2) of the 1969 Constitution, Article 190 (2) of the 1979 constitution, etc (Kasanga, 2001). The 1992 Constitution reaffirmed the creation of the position of Administrator of Stool lands. The office of the Administrator of Stool Lands to be responsible for (i) the establishment of a stool land account for each stool into which shall be paid all rents, dues, royalties, revenues or other payments whether in the nature of income or capital from stool lands; (ii) the collection of all such rents, dues, royalties, revenues or other payments whether in the nature of income or capital and to account for them to the beneficiaries specified in clause (6) of this article, and (iii) the disbursement of such revenues as may be determined in accordance with clause (6) of this article.



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Some intrinsic activities (customary practices) in the previously outlined procedures need to be highlighted. At the initial phase of identifying the land, a prospective buyer visits a sub-chief's palace. The potential buyer must first offer "kola" to the palace elders in order to be welcomed and given permission to reveal his or her objective. The modern equivalent of this tradition is an undisclosed sum of money (Mintah et al., 2020). If there is any vacant land, a visit (in the company of certain elders from the palace) is conducted to the location after the payment and mission disclosure have been made. The potential buyer gives the elders some money once more for this visit (Quaye, 2014). It is important to note that these funds are not included in the actual land valuation. The purchaser would still have to pay for land valuation, making the customary land acquisition process expensive. The 'kola money' must be paid before one can reveal their mission; as a result, if land is unavailable once the mission has been revealed, the buyer forfeits the 'kola money'. This problem gives grounds for criticism.

The second which is record keeping is poor (Gavu & Sarfo-Kantanka, 2014). A number of traditional land authorities have suffered from poor record keeping, which has resulted in a particular parcel of land being sold to two or more investors. The Lands Commission has not properly documented and validated land transactions, especially deeds of leased lands in Kumasi, as required by law. Kumasi, in Ghana's Ashanti Region, serves as a case study. Stool lands in Kumasi have not been poorly managed. The chiefs who administer lands and hold the power to distribute and lease lands do not have maps as proof of lands distributed. They hardly ever collaborate on any land deal with other bodies that control land, like Town and Country Planning, the District Assembly, or the Lands Commission. Prospective purchasers can be given land anywhere that is available and free of encumbrances.

Another issue was lack of accountability and transparency (Abdulai & Ndekugri, 2007). By law, the Office of the Administrator of Stool Lands is responsible for collecting and disbursing revenues from the usage of customary land. However, for every piece of land leased, the chiefs receive enormous quantities of money that they refer to as "drink" (premium) money. Additionally, a lot of stools could not keep accurate records, if they do, they are not transparent enough of the amounts of rent and royalty payments. Community members who may need proof of specific or general transactions carried out by traditional authorities may not have access to any records that may exist. Informing their communities about the receipt and distribution of stool land profits is not something they deem appropriate.

Similar to public lands, a potential buyer would need to meet certain criteria in order to acquire ownership of customary lands. Many areas in Kumasi are affected by youth agitation caused by the lack of accountability and transparency. In many instances, when no formal sector organizations are consulted, the information obtained at the chief's palace frequently ends up being the sole reliable information needed to complete the acquisition. This condition is used by some dishonest chiefs to continue selling the same plot of property twice to different buyers, which frequently results in land disputes and strife. Repetition of functions which results in the prolongation of the procedure of acquiring land is the final challenge to be discussed (Appau, 2018). For instance, as mentioned in the first challenge, the elders from the palace visit the location. Some officials from the Lands Commission also visit the location. To prevent the process from being prolonged, the visitation could have been done by combining the two parties in one operation. The above-mentioned challenges make it difficult and in some cases, risky to purchase customary lands.

The procedures one would have to follow to acquire customary lands in Ghana are depicted in Figure 3.

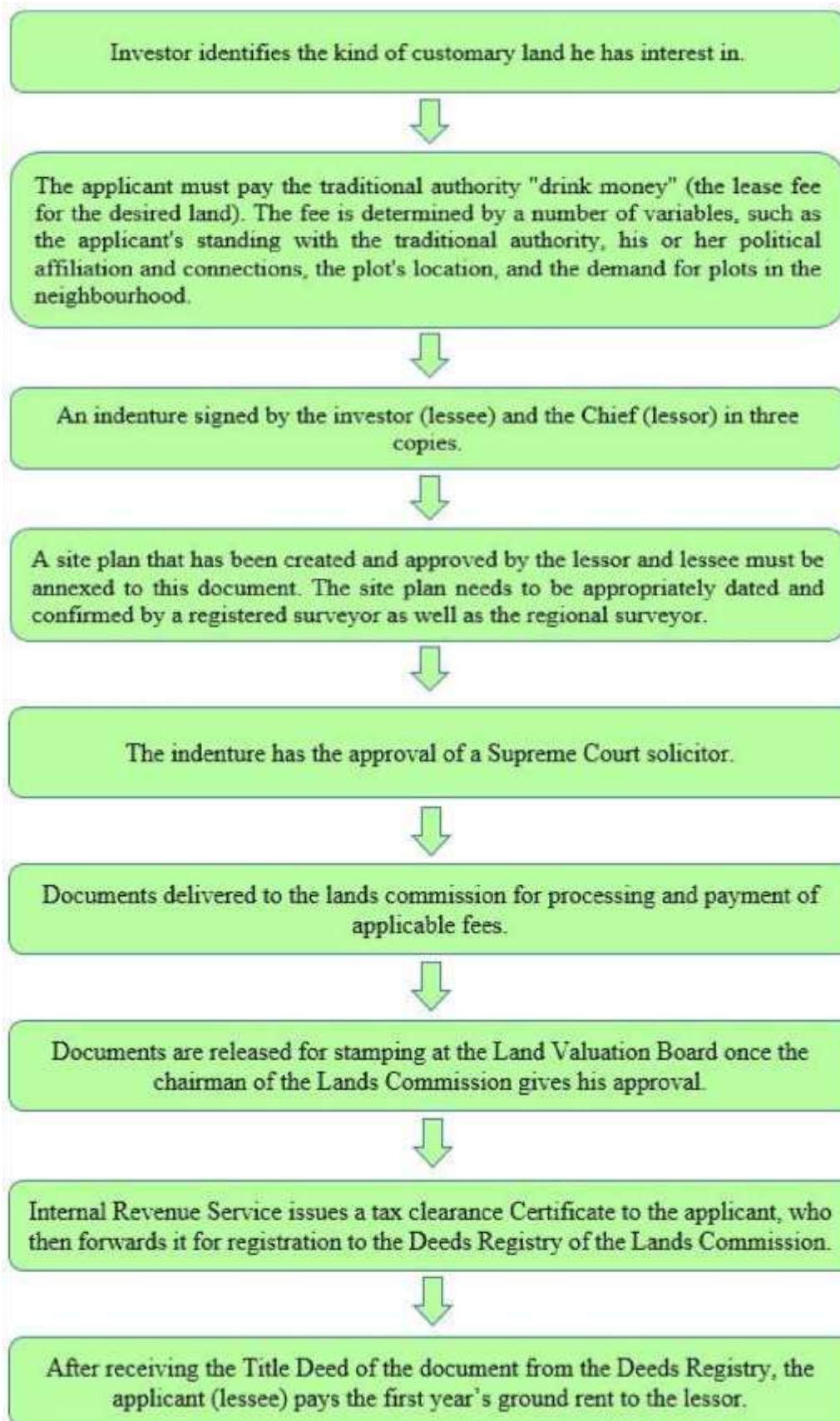


Figure 3: Procedures to Acquire Customary Lands in Ghana (*Researchers' construct*)

#### 4.2 Land use development procedures in Kumasi

Land use planning is typically described as an interdisciplinary activity that involves planning on land usage; deciding how and where to develop activities, identifying ways to improve the physical structures that are already there, and deciding how and

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where to build new physical structures (UNECE, 1996). As a spatial activity, land use planning is governed by tenancy laws and agreements that govern access to land, security of tenure, and how to dispose of land (UN Habitat, 2009). Land use planning is crucial in this regard because it helps identify desirable land uses that support regional development objectives by taking into account the physical and geographical characteristics of the land as well as the trends in socioeconomic activity. It is reasonable to contend that safety, beauty, harmony, convenience, and economics serve as the guiding principles of land use planning in this situation in order to promote inclusivity, pro-poor growth, and sustainability (Metternicht, 2017).

In Ghanaian towns, including Kumasi, land use planning is primarily a state-led activity. It aims to harmonize competing land uses in order to create sustainable and orderly human settlement growth. These are accomplished via a variety of mechanisms, including occupancy regulations, zoning laws, and requirements for density. In essence, controlling how land is used is the main goal of land ownership and management as well as land use planning. In order to direct the growth of human settlements, appropriate statutory agencies are required to develop, execute, and enforce land use plans. Officially, the TCPD is responsible for creating planning schemes based on planning standards and regulations (Regulations & Plans, 1996). Plans become enforceable legal documents when they are adopted and approved for use in managing land. Despite the fact that traditional authorities continue to be the customary owners, these rights are afterward provided to potential developers through the issuing of planning and development permits by the designated planning authority. The government land management bodies therefore, create land use planning strategies with the goal of putting them into practice on a major portion of customary lands.

The proposals were previously sent to Accra for ministerial clearance after an evaluation at the district level. The Local Government Act 462 (1993), however, has given MMDAs the confidence to forgo the final step of the procedure. One tool used by Metropolitan, Municipal and District Assemblies (MMDAs) to regulate physical development within their separate jurisdictions is the issuance of building permits. The Local Government Act of 1993, Act 462, requires MMDAs to grant prospective developers building permits, a legal document that allows them to erect buildings in compliance with the specifications in their plans and the development code and rules established by the assembly. The actions of these developers are also governed by the National Building Regulations and the Bylaws of the Assemblies. According to Boamah et al. (2012), about 80 per cent of all urban growth in Ghana takes place outside of formal planning procedures and is typically governed by traditional authority, land use planning has generally failed to have a substantial impact on sustainable urban development.

Building construction activities without the required authorization and without a building permit are to blame for the undesirable development the country is currently going through (Botchway et al., 2014). The second-largest city in Ghana, Kumasi, has experienced significant growth over the past 20 years. As a result, residential construction has spread into nearby rural villages, generally without prior coordination or planning (Owusu-Ansah & Braimah, 2013). There are challenges associated with the above procedure. The first challenge that was identified is the delay in the approval process. This is the commonest of the challenges that were identified which is really disturbing according to the developers who were interviewed.

Potential developers must follow certain procedures after acquiring either public or customary land in order to receive approval or a permit for whatever use they wish to put the land to. These procedures are shown in figure 4.

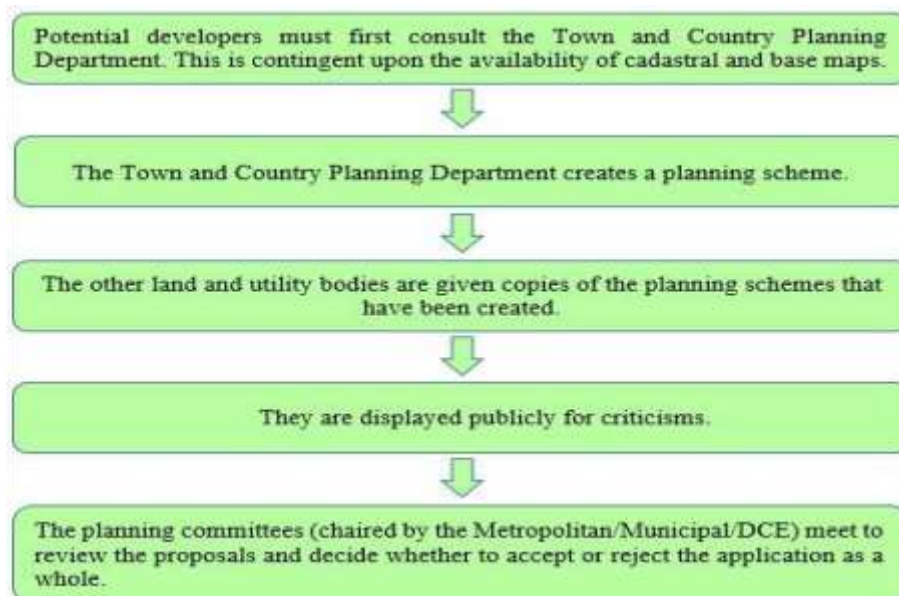


Figure 4: Approved Procedures after acquiring Public or Customary Land (Researchers' construct)

## **Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi**

According to Eyiah (2004), in order to secure building permits, developers must interact with national, regional, and district bureaucracies at all stages of a project. Individuals and corporate developers alike have stories to tell about the level of expense and aggravation incurred as a result of the numerous follow-ups and related delays encountered while patiently waiting for plans and drawings to be approved. This and other factors cause a delay in this procedure. As one of them said; *"This process is what slows everything down. I sometimes feel like giving up because of the extreme slowness of the process is."* The lack of suitable logistics, qualified specialists from the assembly, insufficient and incorrect land documents, and poor designs, form the basis for the delay in the approval of the building permit. As said by one of the officials; *"Madam, we are willing to work, but we don't have the needed logistics to make this process easy."*

This suggests that the few competent and experienced staff need to put in greater effort in order to evaluate proposals within the usual allotted period. The inspectors' top priority is logistics, such as transportation. As a result of this delay, some developers begin to develop their properties without approval from the Town and Country Planning Department. According to the officials who were interviewed, the biggest issue that leads to planning schemes being either delayed or totally denied is non-conforming working plans or drawings. With this, planning schemes can be denied even if the projects have taken off.

The officials of the TCPD and Planning Committees could influence certain aspects of the planning scheme under pressure from chiefs and homebuilders which is also a big challenge. *"There is so much pressure from especially the chiefs that we end up approving plans which are not supposed to be approved"* This shows how some chiefs and people obstruct the work of these officials. In this approach, a lot of land is set aside for residential construction even in permitted subdivisions, at the expense of public amenities like parks, playgrounds, and open spaces.

The next challenge worth mentioning is the high cost of the procedure. The expensive process discourages developers from requesting permits. Some developers are much aware of the processes they have to go through to gain approval to start their development, but will not venture getting the approval because of the expensive nature of the process. Some other developers do not even know that there is a process like this to satisfy. They develop straight away after acquiring the land from owners. Even the regulations governing development are sometimes unknown to developers. In Kumasi, many new and established neighbourhoods lack a planning permit. This has led to haphazard growth of developments in many of such communities in Kumasi. In 2009, 80% of buildings in the Metropolis lacked building permits, according to the Kumasi Township Building Development Office. Only 7.2% of structures in the Metropolis got permits between 1990 and 2000 (Agyeman et al., 2016).

### **5.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.**

The primary objective of this article was to analyse existing practices in urban land acquisition and development procedures. It was necessary to understand the various processes one goes through in order to acquire either a public or customary land. The processes to be satisfied in order to obtain a building permit was also looked at by interviewing regulators and developers. The findings from the study are that (i) there are well spelt out procedures that one would have to go through to acquire and develop lands; (ii) there are also laws, governing the acquisition and development of both the public and customary lands, and (iii) agencies have been established to administer or manage issues of lands alongside that of the traditional authorities. These have constitutional backing.

It has been established that, there are a number of weaknesses affecting the strength of the various procedures. The key obstacles that were mentioned by both the officials and developers with the acquisition of public lands includes; (i) the expensive nature of the procedure, (ii) improper record keeping, (iii) overlap of bureaucracy, (iv) disorganization of the procedure, and (v) the presence of unqualified or untrained middlemen. The weaknesses that were also mentioned with the acquisition of customary lands comprised; (i) the expensive nature of the procedure, (ii) poor record keeping, (iii) lack of accountability and transparency on the part of the traditional authorities, and (iv) the prolonged nature of the procedure. In terms of the acquisition of permit and approval of planning schemes the constraints had to do with delay in approval and pressure from chiefs and homeowners which interferes with the work of the bodies in charge of the approval of permit, and the high cost of the procedure.

### **5.1 CONCLUSION**

The associated bottlenecks in urban land acquisition and development procedures in Ghana has become an issue of much concern. This issue which is unavoidable but rather controllable is as a result of the high demand for lands by developers for residential accommodation and business. The situation poses a lot of challenges to developers due to the above weaknesses make the acquisition of land risky. This problem needs special attention by all standards from all stakeholders. Though some necessary recommendations have been provided in the study to curb the problem at stake that alone cannot solve all the problems

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associated with the situation at hand. Those recommendations, on the other hand, can go a long way toward mitigating some of the issues if they are embraced and evaluated.

### 5.2 RECOMMENDATIONS

The following are recommendations made per the findings:

- There should be strict enforcement of laws set to help with the management and administration of lands. The rules and regulations set out in the 1992 constitution of Ghana, and the National Building Regulations of 1996, and the National Building Code 2018 should be complied with to implement the spirit and word of it. This would ensure the successful administration and management of lands.
- Land is the essence of our survival and the prospects to humans are enormous. The costs associated to it are high. The researchers' opinion is that the government should prioritise on systematic titling to promote development in a more conducive environment.
- There should be proper record keeping by the various bodies. This will help curb the issue of multiple sales of land which is caused mainly by the improper records keeping.
- Some departments or functions can be merged to shorten the time involved in the processes, and reduce the amount of money and time the developer spends in acquiring and processing of permit.
- Field officials should be provided with enough resources which will make their work more efficient.
- An online monitoring and tracking system is recommended to facilitate efficiency, reduce periodic visits to land governance office, establish transparency and accountability. This would log all processes revealing the times of entries and exits of all documents to various offices. It would record payments and the times they were made. The establishment of this procedure should eliminate the unqualified and untrained middlemen parading the corridors of land governance offices who frustrate and defraud potential land owners.

### REFERENCES

- 1) Abdulai, R. T., & Ndekugri, I. E. (2007). Customary landholding institutions and housing development in urban centres of Ghana: Case Studies of Kumasi and Wa. *Habitat International*, 31(2), 257–267. <https://doi.org/10.1016/j.habitatint.2007.02.004>
- 2) Agarwal, B., Locke, J., Smith, A., & Spencer, H. (1996). *Land Tenure* 1. 20(5).
- 3) Agyeman, S., Herbert, A., & Sampson, A. (2016). Are the Challenges in the Processing of Building Permits a Precursor for Development of Illegal Structures in Ghana? *US-China Law Review*, 13(4). <https://doi.org/10.17265/1548-6605/2016.04.003>
- 4) Amanor, S. K. (2010). *AGRICULTURAL COMMODIFICATION IN SOUTH-EASTERN GHANA FAMILY VALUES , LAND SALES AND*. 80(1), 104–125. <https://doi.org/10.3366/E000>
- 5) Ameyaw, P. D., & de Vries, W. T. (2021). Toward smart land management: Land acquisition and the associated challenges in Ghana. a look into a blockchain digital land registry for prospects. *Land*, 10(3), 1–22. <https://doi.org/10.3390/land10030239>
- 6) Ameyaw, P. D., & Vries, W. T. De. (2020). *Land Perspective*.
- 7) Ansah, R. O. (2022). *ASSESSMENT OF LAND INFORMATION SYSTEM FOR LAND ADMINISTRATION : A Case Study of Ghana*.
- 8) Appau, W. M. (2018). *Land Registration Process Modelling for Complex Land Tenure System in Ghana*. 84. [https://library.itc.utwente.nl/papers\\_2018/msc/la/miller.pdf](https://library.itc.utwente.nl/papers_2018/msc/la/miller.pdf)
- 9) Arko-adjei, A. (2011). *Adapting landadministration to theinstitutional frameworkof customary tenure (PhD Thesis):Faculty of Geo-information Science and Earth Observation-University of Twente*.
- 10) Atilola, O. (2013). Systematic Land Titling and Registration in Nigeria: Geoinformation Challenges. *Systematic Land Titling and Registration in Nigeria: Geoinformation Challenges, May 2013*, 13. <https://www.oicrf.org/documents/40950/43224/Systematic+land+titling+and+registr ation+in+Nigeria+geoinformation+challenges.pdf/bf574c75-0ad2-6d27-4357-2ed67a0b5010>
- 11) Awaworyi Churchill, S. (2020). Moving from the millennium to the sustainable development goals: Lessons and recommendations. *Moving from the Millennium to the Sustainable Development Goals: Lessons and Recommendations, April*, 1–366. <https://doi.org/10.1007/978-981-15-1556-9>
- 12) Bansah, D. K. (2019). *Governance Challenges in Sub-Saharan Africa: The case of land guards and land protection in Ghana*.
- 13) Boamah, N. A., Gyimah, C., & Bediako Nelson, J. K. (2012). Challenges to the enforcement of development controls in the Wa municipality. *Habitat International*, 36(1), 136–142. <https://doi.org/10.1016/j.habitatint.2011.06.010>

## Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi

- 14) Botchway, E. A., Afram, S. O., & Ankrah, J. (2014). Building Permit Acquisition in Ghana : The Situation in Kumasi. *Developing Country Studies*, 4(20), 11–22.
- 15) Bruce, J. . (2014). *The Variety of Reform: A Review of Recent Experience with Land Reform and the Reform of Land Tenure, with Particular Reference to the African Experience* (pp. 13–56).
- 16) Bunkus, R., & Theesfeld, I. (2018). Land grabbing in Europe? Socio-cultural externalities of large-scale land acquisitions in East Germany. *Land*, 7(3). <https://doi.org/10.3390/land7030098>
- 17) Chakravorty, S. (2016). Land acquisition in India: The political-economy of changing the law. *Area Development and Policy*, 1(1), 48–62. <https://doi.org/10.1080/23792949.2016.1160325>
- 18) Christophers, B., & Christophers, B. (2023). *For real : land as capital and commodity* Published by : Wiley on behalf of The Royal Geographical Society ( with the Institute of For real : land as capital and commodity. 41(2), 134–148.
- 19) Crook, R. C. (2004). Access to justice and land disputes in Ghana's state courts: The litigants' perspective. *Journal of Legal Pluralism and Unofficial Law*, 36(50), 1–28. <https://doi.org/10.1080/07329113.2004.10756576>
- 20) Danso, H., & Manu, D. (2013). High Cost of Materials and Land Acquisition Problems in the Construction Industry in Ghana. *IJREAS International Journal of Research in Engineering & Applied Sciences International Journal of Research in Engineering & Applied Sciences*, 3(19).
- 21) Dwyer, M. B. (2015). The formalization fix? Land titling, land concessions and the politics of spatial transparency in Cambodia. *Journal of Peasant Studies*, 42(5), 903–928. <https://doi.org/10.1080/03066150.2014.994510>
- 22) Fiadzibey, M. E. (2006). Customary Land Administrator in Ghana – Challenges and Prospects Customary. *Shaping the Change*, 1–11.
- 23) Gardebroek, C.1 and Hernandez, M. . (n.d.). *This document is discoverable and free to researchers across the globe due to the work of AgEcon Search . Help ensure our sustainability . Modelling Outcomes and Assessing Market*.
- 24) Gavu, E., & Sarfo-Kantanka, N. (2014). *Records Management Practice in Land Sector Agencies, Evidence From the Land Registration Division of the Lands Commission in Accra - Ghana*. 91(2006). [https://doi.org/10.15396/afres2014\\_128](https://doi.org/10.15396/afres2014_128)
- 25) Gómez, S. (2014). The land market in Latin America and the Caribbean: concentration and foreignization. In *The land market in Latin America and the Caribbean: concentration and foreignization* (Issue November 2019). <http://www.fao.org/3/ai4172e.pdf#page=27>
- 26) Gyamera, E. A., Duncan, E. E. . K., & Arko-Adjei, J. S. Y. (2016). Land Acquisition in Ghana; Dealing With the Challenges and the Way Forward. *Journal of Agricultural Economics, Extension and Rural Development*, January, 664–672.
- 27) Hull, S., Babalola, K., & Whittal, J. (2019). Theories of land reform and their impact on land reform success in Southern Africa. *Land*, 8(11). <https://doi.org/10.3390/land8110172>
- 28) Ibbotson, R. G., & Siegel, L. B. (1984). Real Estate Returns: A Comparison with Other Investments. *Real Estate Economics*, 12(3), 219–242. <https://doi.org/10.1111/1540-6229.00320>
- 29) IFAD. (2008). Improving access to land and tenure security. *Palombi e Lanci, Rome*, 44.
- 30) Kasanga, K. (2001). Administration Reforms and Social Differentiation A Case Study of. *IDS Bulletin*, 32(1), 57–64.
- 31) Kasanga, K., & Kotey, N. A. (2001). Land Management in Ghana : Building on Tradition and Modernity. *Russell The Journal Of The Bertrand Russell Archives, February*, 1–42. <http://www.eldis.org/vfile/upload/1/document/0708/DOC5021.pdf>
- 32) King, R., & Sumbo, D. (2015). Implications of compulsory land acquisition and compensation in Ghana: a case study of land acquisition for the Suame-Buoho road reconstruction in Kumasi. *Journal of Science and Technology (Ghana)*, 35(2), 100. <https://doi.org/10.4314/just.v35i2.10>
- 33) Kuntu-Mensah, P. (2006). On the Implementation of Land Title Registration in Ghana. *Promoting Land Administration and Good Governance 5th FIG Regional Conference Accra-Ghana*, 1–9.
- 34) Lagopoulos, A. (2018). Clarifying Theoretical and Applied Land-Use Planning Concepts. *Urban Science*, 2(1), 17. <https://doi.org/10.3390/urbansci2010017>
- 35) Larbi, W. O., Antwi, A., & Olomolaiye, P. (2004). Compulsory land acquisition in Ghana-policy and praxis. *Land Use Policy*, 21(2), 115–127. <https://doi.org/10.1016/j.landusepol.2003.09.004>
- 36) Matthews, A. (2021). The contribution of research to agricultural policy in Europe. *Bio-Based and Applied Economics*, 10(3), 185–205. <https://doi.org/10.36253/bae-12322>
- 37) Metternicht, G. (2017). Global Outlook Working Paper on land use planning. *Global Land Outlook Working Paper*, 1–67.
- 38) Ministry of Lands and Forestry. (1999). National Land Policy. *Ministry of Lands and Forestry. Ghana, June*.
- 39) Mintah, K., Baako, K. T., Kavaarpuo, G., & Otchere, G. K. (2020). Skin lands in Ghana and application of blockchain technology for acquisition and title registration. *Journal of Property, Planning and Environmental Law*, 12(2), 147–169. <https://doi.org/10.1108/JPPPEL-12-2019-0062>

## Associated Challenges of Urban Land Acquisition and Development Procedures in Ghana: A Case Study of Kumasi

- 40) Mintah, K., Boateng, F. G., Baako, K. T., Gaisie, E., & Otchere, G. K. (2021). Blockchain on stool land acquisition: Lessons from Ghana for strengthening land tenure security other than titling. *Land Use Policy*, 109(June), 105635. <https://doi.org/10.1016/j.landusepol.2021.105635>
- 41) Mukrimaa, S. S., Nurdyansyah, Fahyuni, E. F., YULIA CITRA, A., Schulz, N. D., د. غسان, Taniredja, T., Faridli, E. M., & Harmianto, S. (2016). Land Grabbing in Europe. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, 6(August), 128.
- 42) Ndersen, P. E. R. P. I. (2005). E Thics and E Conomic P Olicy for the F Ood S Ystem. *Agricultural Economics*, 87(5), 1097–1112.
- 43) NettZero. (2023). *Land Use and land use sustainability*. <https://www.nettzero.co.za/landuse-sustainability/>
- 44) Obeng-Odoom, F. (2014). Urban Land Policies in Ghana: A Case of the Emperor’s New Clothes? *Review of Black Political Economy*, 41(2), 119–143. <https://doi.org/10.1007/s12114-013-9175-5>
- 45) Obeng-Odoom, F. (2016). Understanding Land Reform in Ghana: A Critical Postcolonial Institutional Approach. *Review of Radical Political Economics*, 48(4), 661–680. <https://doi.org/10.1177/0486613415603161>
- 46) Ofori, A. S. (2020). *The Land of the Chiefs and the Land of the State – What happens after an acquisition in Ghana ?*
- 47) Olutayo Oluwadare, C., & Kufoniyyi, O. (2019). Space-Enhanced Systematic Land Titling and Registration: A Stride at Resuscitating Nigeria’s “Dead Capital.” *O. / SpaceEnhanced Systematic Land Titling and Registration African Journal of Land Policy and Geospatial Sciences*, 2(2), 2657–2664.
- 48) Owusu-Ansah, J. K., & Braimah, I. (2013). The dual land management systems as an influence on physical development outcomes around Kumasi, Ghana. *Journal of Housing and the Built Environment*, 28(4), 689–703. <https://doi.org/10.1007/s10901-012-9330-5>
- 49) Peters, P. E. (2009). Challenges in Land Tenure and Land Reform in Africa: Anthropological Contributions. *World Development*, 37(8), 1317–1325. <https://doi.org/10.1016/j.worlddev.2008.08.021>
- 50) Poku-Boansi, M., Amoako, C., Owusu-Ansah, J. K., & Cobbinah, P. B. (2020). What the state does but fails: Exploring smart options for urban flood risk management in informal Accra, Ghana. *City and Environment Interactions*, 5, 100038. <https://doi.org/10.1016/j.cacint.2020.100038>
- 51) Project, C. C. (2013). *Estonia ’ s Constitution of 1992 with Amendments through. June 1992*, 1–39.
- 52) Qadeer, M. . (2016). The Nature of Urban Land : The American Journal of Economics and Sociology. *The American Journal of Economics and Sociology*, 40(2), 165–182. Quaye, B. A. (2014). *Formal and Informal Land Institutions, Land Information Deficiencies, and the Development of Urban Land Markets in Ghana. December*, 1–372. <https://ourarchive.otago.ac.nz/handle/10523/4903>
- 53) Regulations, A. O. F., & Plans, B. (1996). *National Building Regulations 1996 , ( Li 1630). Li 1630*.
- 54) Sabatini, F., & Jordán, R. (1986). *Public Land Acquisition in Latin America*.
- 55) Singh, S. (2016). Land Acquisition in India. *Journal of Land and Rural Studies*, 4(1), 66–78. <https://doi.org/10.1177/2321024915616673>
- 56) Toulmin, C., Hesse, C., & Cotula, L. (2004). Pastoral commons sense: Lessons from recent developments in policy, law and practice for the management of grazing lands. *Forests Trees and Livelihoods*, 14(2–4), 243–262. <https://doi.org/10.1080/14728028.2004.9752496>
- 57) Ubink, J. M. (2008). *In the Land of the Chiefs*. 1–136.
- 58) UN Habitat. (2009). *Global Report on Human Settlements 2009 .Planning Sustainable Cities*.
- 59) UNCTAD, FAO, IFAD, & World Bank Group. (2010). *Principles for Responsible Agricultural Investment that Respects Rights, Livelihoods and Resources*. 21.
- 60) UNECE. (1996). Land Administration Guidelines. In *United Nations*. <http://www.unece.org/fileadmin/DAM/hlm/documents/Publications/land.administration.guidelines.e.pdf>
- 61) World Bank. (2013). *Ghana\_Land\_Administration\_PROJECT PERFORMANCE ASSESSMENT REPORT*. 3817.
- 62) Yiri li, K. (2006). Customary Lands Administration and Good Governance – The State and the Traditional Rulers Interface Customary Lands Administration and Good Governance. *Promoting Land Administration and Good Governance- 5th FIG Regional Conference*, 1–19.



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## Recreational Value of Mangrove Ecotourism: A Case Study in Jerowaru East Lombok, Indonesia



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**ABSTRACT:** Mangrove forest ecosystems confer various advantages to human populations, including but not limited to safeguarding against tsunamis and abrasion, sequestering carbon, serving as fish breeding grounds, and providing recreational opportunities. The provision of welfare and stimulation of economic growth for local population can be facilitated by the recreational or tourism value. Nevertheless, the significance of mangrove forests, encompassing their recreational value, is sometimes overlooked. This research examines the various elements that impact tourists' inclination to engage in the preservation of Mangrove Ecotourism, using Jerowaru Village in East Lombok as a case study. This study employed the Contingent Valuation Method (CVM) to determine the average Willingness to Pay (WTP) of tourists in Mangrove Ecotourism, which was determined to be IDR 10,416.67 (0.68 USD) per visit. The total amount is contingent upon factors such as environmental awareness, educational attainment, and income level.

**KEYWORDS:** Mangrove conservation, Contingent Valuation, Recreational value

### I. INTRODUCTION

Indonesia is recognized as a nation that possesses a significant proportion of the global mangrove ecosystem, with an estimated coverage of approximately 20-25% (Ministry of Environment and Forestry, 2022). Indonesia possesses a total land area of around 3.36 million hectares. This land is distributed throughout many regions, with Papua accounting for 1,562,905 hectares, Sumatra covering 660,445 hectares, Kalimantan spanning 688,025 hectares, Maluku occupying 224.46 hectares, Java encompassing 56,500 hectares, and Bali-Nusa Tenggara comprising 39,974 hectares.

The advantages of mangrove forests are attributed to their distinct ecosystem (Hasan-Basri et al., 2020). The ecosystem provides a range of functions that offer benefits to human populations. These services include safeguarding against tsunamis and abrasion, sequestering carbon, providing habitats for fish breeding, and serving as recreational areas. Recreation or tourism holds significant significance in terms of fostering prosperity and stimulating economic progress for the local populace (Nurkhalifah et al., 2022; Shaputra et al., 2022). Nevertheless, the significance of mangrove forests, encompassing their recreational value, is frequently disregarded. Certain mangrove ecosystems have undergone conversion for other purposes, primarily aimed at generating more commercially viable products, such as the establishment of shrimp ponds. Consequently, the depletion of mangrove ecosystems can lead to significant economic ramifications for neighboring people in the event of a natural calamity, such as a tsunami (Diswandi & Saptutyingsih, 2019).

According to Litolily et al. (2020), the state of mangrove forests is currently experiencing a heightened level of criticality. In order to mitigate the adverse impacts of human activities leading to the depletion of mangroves, it is imperative to implement conservation strategies aimed at preventing losses such as tsunamis and abrasion. One potential approach to bolstering mangrove conservation efforts is examining the concept of individual willingness to pay (WTP) for the preservation of mangrove forests. Willingness to Pay (WTP) refers to the monetary value that consumers are willing to allocate towards the acquisition of a specific product or service (Djayasinga, 2019; Fajria, 2020; Hadhi Priambodo et al., 2014; Hidayah & Ayu Nuning Farida Afiatna, 2021; Pertiwi et al., 2022a; Riana et al., 2019). Moreover, the analysis conducted by Medida and Purnomo (2021) examines the economic worth of WTP in order to assess its environmental implications. Additionally, Maulana (2021) highlights the significance of establishing a conducive atmosphere that fosters tourism.

Several studies have demonstrated that individuals who visit destinations for tourism exhibit a willingness to financially contribute towards the preservation and maintenance of these sites (Qowi & Arianti, 2021; Yuliarti et al., 2022). Pulido (2016) recommends that tourist segments characterized by a higher degree of intelligence demonstrate a greater willingness to



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allocate additional financial resources towards visiting places that prioritize sustainable tourism practices. In addition to domestic visitors, international tourists also demonstrate a willingness to support the financial aspects of the environmental services (PES) program, which aims to ensure the preservation of coral reefs and other marine biota populations (Diswandi et al., 2021). Income is a crucial determinant that exerts a substantial impact on tourists' propensity to pay, as evidenced by studies conducted by Fikri and Rahmini (2020), Lestiani et al. (2022), Mohamad and Lahay (2021), and Pertiwi et al. (2022).

Many researchers have conducted studies on visitors' willingness to pay (WTP) for conservation efforts, yielding varying outcomes. According to a study conducted by Medida (2021), it was found that the mean Willingness to Pay (WTP) value that tourists are willing to contribute is IDR 2,593.7. In addition to this, Kevin et al. (2021) have presented research findings indicating that the mean annual willingness to pay for tourists amounts to IDR 27,552,000,000. Moreover, the endorsement of ecotourism development is reinforced by the perception of both tourists and the local community. According to Mukhlisi (2018), this form of tourism has a projected annual economic value of IDR 1,423,914,894. In addition, Simarmata et al. (2022) have reported that the mean value of visitors' willingness to pay (WTP) at tourist destinations is IDR 9,450.00. Furthermore, the study highlights that tourists hold very positive attitudes regarding environmental conditions, benefits, and amenities, suggesting the need for further improvements to enhance tourist appeal.

Jerowaru Village, located in East Lombok, West Nusa Tenggara Province, Indonesia, is recognized as a location that harbors a significant mangrove forest. One potential strategy employed by local inhabitants involves transforming mangrove forests into a tourist attraction. The emerging form of tourism being cultivated is Mangrove Ecotourism, spearheaded by a cohort of youthful individuals affiliated with the Telong Elong Youth Association (IPT). The objective is to develop educational excursions targeting the general public, focusing on imparting knowledge about mangrove trees and elucidating their ecological mechanisms. This study aims to assess the financial capacity of tourists to support the conservation efforts of Mangrove Ecotourism, as well as to examine the various elements that contribute to tourists' willingness to engage in conservation activities specifically related to Mangrove Ecotourism in the designated area. This study seeks to gain understanding of the potential advantages and obstacles associated with the implementation of payment systems for funding and sustainable management of mangroves, through an examination of tourists' motives, perceptions, and financial evaluations.

## II. METHODOLOGY

### A. Research Location

The location of this research is in Jerowaru Village, Jerowaru District, East Lombok Regency, Indonesia.

### B. Research Method

The research method used is descriptive, with a focus on a quantitative approach (Sugiyono, 2011). The research location was administratively carried out in mangrove ecotourism which is part of the East Lombok Regency area. The selection of this research location was based on several considerations, apart from the benefits of mangrove forests which prevent abrasion as well as being a tourist area.

The research population is visitors from mangrove ecotourism. The number of samples/respondents used in this research was 90 people. Determining the sample in this research used an accidental sampling technique, where the sample used was determined based on respondents who happened to be present or available in a place according to the research context.

### C. Data Analysis

In this research, the factors thought to influence the WTP value were analyzed using a multiple linear regression model. Multiple linear regression analysis was used to identify the relationship between the variables involved (Ghozali, 2016).

The equation function used to examine the factors that influence the WTP is as follow:

$$WTP = \alpha_0 + \beta_1 \text{Age} + \beta_2 \text{Education} + \beta_3 \text{Income} + \beta_4 \text{Awareness} + u_i$$

Where, WTP is the Willingness to pay that refers to the maximum amount or value that a person is willing to spend or sacrifice in exchange for services, in this case Mangrove ecotourism environmental services. The measurement used is Indonesian currency (rupiah). Age refers to measuring the time since a person was born, indicating how long they have lived. Meanwhile, Education refers to the process of acquiring knowledge, skills, values and understanding through formal means. This variable is measured using the number of years of schooling. Income is the amount or economic value received by individuals, households or other entities from various sources during one month. The Awareness in this study refers to environmental awareness which is proxied by how important Mangrove ecotourism is according to the visitors.

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### III. RESULT AND DISCUSSION

The respondents characteristics is described in the following table :

Variabel	Responses	Frequency	Percent
WTP	<IDR. 5.000	16	17.8
	IDR. 5.000-10.000	43	47.8
	IDR. 10.000-15.000	13	14.4
	IDR.15.000-20.000	9	10.0
	IDR. 20.000-25.000	6	6.7
	>IDR. 25.000	3	3.3
Age	16-25	34	37.8
	26-35	21	23.3
	36-45	24	26.7
	46-55	8	8.9
	56-65	3	3.3
Education	6	14	15.6
	9	8	8.9
	12	44	48.9
	16	22	24.4
	18	2	2.2
Income	IDR. 0-2.000.000	72	80
	IDR. 2.100.000-5.000.000	14	15.6
	IDR. 5.100.000-7.500.000	2	2.2
	IDR. 10.100.000-15.000.000	2	2.2
Awareness	Netral	1	1.1
	important	35	38.9
	very important	54	60.0
	Total	90	100.0

From the table above it can be explained the following characteristics of the respondents;

#### Willingness to Pay

WTP describes the extent to which individuals in the sample are willing to pay for each visit to Mangrove Ecotourism. The majority of individuals are willing to pay between IDR 5,000 and IDR 10,000, as many as 43 people or accounting for 47.8% of the total sample. Then the second order is willing to pay less than IDR. 5,000 as many as 16 people or 17.8% of the total sample, while the willingness to pay IDR. 10,000 to 15,000 in third place as many as 13 people or 14.4%, then fourth, namely willingness to pay IDR 15,000 to 20,000 as many as 9 people or 10.0%, then willingness to pay IDR. 20,000 to 25,000 in fifth place with a total of 6 people or the equivalent of 6.7%, then those in last position are willing to pay more than IDR. 25,000 as many as 3 people or 3.3% of the sample.

#### Age

The majority of visitors from Mangrove ecotourism are dominated by tourists aged 16-25 years as many as 34 people or around 37.8%, in second place are those aged 36-45 years as many as 24 people or around 26.7%, in third place are those aged 26-35 years as many 21 people or around 23.3%, then in fourth place, namely 8 people aged 46-55 years or around 8.9%, while those aged 56-65 years at least were 3 people or around 3.3%.

#### Education

The education of visitors to Mangrove ecotourism is measured by the respondent's length of schooling. Respondents who dominated taking 12 years of education or the equivalent of high school 48.9%, then in second place who took 16 years of education or the equivalent of D3-S1 24.4%, then in third place were respondents who took 6 years of education or the equivalent of SD 15.6 The fourth % are those who have completed 9 years of education or the equivalent of SMP 8%, and the least are those who have completed 18 years of education or the equivalent of Masters 2.2%.

#### Income

Income in this data sample is based on a monthly range. The highest income range for Mangrove ecotourism visitors is IDR 0 to IDR 2,000,000 or around 80% of the total sample, other income groups have lower percentages, with income between IDR 2,100,000 to IDR 5,000,000 for 14 people or around 15.6% of the total sample, while the higher income group is IDR. 5,100,000 to 7,500,000 and IDR. 10,100,000 to 15,000,000 have a decreasing percentage, each with 2 people or accounting for 2.2% of the total sample.

#### Awareness

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The level of response of respondents to the existence of mangrove forests is that they consider mangrove forests very important as many as 54 people or 60%. Next, they consider mangrove forests important as many as 35 people or 38.9%. Then the last one considers them neutral as many as 1 person or 1.1% of the total sample.

### REGRESSION RESULT

variabel	coefficient	t statistic	P Value
Age	-239.1004	-0.48	0.630
Education	308.7768	1.75	0.083
Awareness	2430.827	2.18	0.032
Income	1439.064	1.75	0.084
_cons	-5755.403	-1.19	0.236
F-statistic			4.15
R-squared			0.1196

From the result above, we can describe the following situation.

**Age:** the coefficient of this variable is negative, which means that the higher the age, the possibility that it will not affect the money spent on Mangrove Ecotourism conservation. The value of this variable is (0.630) greater than the significant threshold of 0.05. Therefore, the age variable can be considered insignificant to the dependent variable. This opinion is supported by Gumilar (2019) which states that the age variable has a negative coefficient and does not have a significant effect. Furthermore, Pratiwi (2019) believes that the age variable is not significant on WTP.

**Education:** the coefficient of this variable is positive, which means that the higher the level of education, the more money is likely to be spent on Mangrove Ecotourism conservation. The value of this variable is (0.083) smaller than the significant threshold of 0.10. Therefore, the Education variable can be considered significant in influencing the dependent variable. This opinion is supported by Diswandi et al., (2021) which states that the education variable has a significant effect on willingness to pay, while according to Medida and Purnomo (2021), education variable has an insignificant impact on the willingness to pay for conservation.

**Level of awareness:** This variable has a positive coefficient, meaning that more money will be spent on protecting mangrove ecotourism if people are more aware of how important mangrove forests are. The variable's value is 0.032, which is less than 0.05. This demonstrates how desire to pay can be significantly influenced by awareness level.

**Income:** This variable has a positive correlation, meaning that more money will be allocated to the conservation of mangrove ecotourism the higher one's income level. This variable has a value of 0.084, which is less than 0.10. This demonstrates that money can make a big difference. While studies by Novianti Sadikin et al. (2017) claimed that income has no significant effect, Gumilar (2019) and Ansong et al. (2023) support this opinion by stating that income has a substantial effect on willingness to pay.

The coefficient of determination is 0.1196, which is around 11.96% of the dependent variable explained by the independent variables included in the model. The P value for the F-statistic of 0.0040 is lower than the overall significance level of 0.05, indicating that the entire model has a significant influence on the dependent variable.

### IV. CONCLUSION

This study found that the recreational value of mangrove forests, as measured by tourists' Willingness to Pay (WTP) in Mangrove Ecotourism, is estimated to be 10,416.67 (0.68 USD) on average per visit. Environmental awareness, Education and Income all have a significant impact on this figure. The significance of environmental awareness in influencing individuals' inclination to engage in environmental protection and conservation is a crucial consideration. Consequently, this study proposes that policymakers should prioritize the integration of environmental awareness into formal education systems as a means to cultivate public consciousness on this topic.

### REFERENCES

- 1) Ansong, M., Ameyaw, J. A. S., Boadu, K. B., Kpikpitse, S., & Acheampong, E. (2023). Local communities' willingness to pay for increasing the status of a Forest Reserve in Ghana to a National Park. *Social Sciences and Humanities Open*, 8(1), 100516. <https://doi.org/10.1016/j.ssaho.2023.100516>
- 2) Bangun, N. B., & Mahuli, J. I. (2022). Pengaruh Kepedulian terhadap Sikap Lingkungan dan Kemauan Membayar. *AFoSJ-LAS*, 2(4), 105–112. <https://j-las.lemkomindo.org/index.php/AFoSJ-LAS/index>

## Recreational Value of Mangrove Ecotourism: A Case Study in Jerowaru East Lombok, Indonesia

- 3) Diswandi, D., Fadliyanti, L., Afifi, M., & Hailuddin, H. (2021). Achieving Sustainable Tourism through Payment for Ecosystem Service (PES) Program: Case Study of Marine Tourism in Gili Matra Indonesia. *Jurnal Ekonomi & Studi Pembangunan*, 22(1), 12–20. <https://doi.org/10.18196/jesp.v22i1.11083>
- 4) Diswandi, & Saptutyingsih, E. (2019). Recreational Value of Mangrove Forest and Tourists Willingness-to-Pay for Mangrove Conservation. *353(IcoSIHESS)*, 121–125. <https://doi.org/10.2991/icosihess-19.2019.20>
- 5) Djayasinga, M. (2019). WILLINGNESS TO PAY (WTP) BY CONTINGENT VALUATION METHOD (CASE STUDY: WASTE MANAGEMENT SERVICES). *International Journal of GEOMATE*, 17. <https://doi.org/10.21660/2019.62>
- 6) Fajria, F. (2020). Analisis Kesiediaan Membayar (Willingness To Pay) Konsumen Terhadap Sayuran Organik Di Pasar Modern Purwokerto Dan Faktor Yang Mempengaruhi. *SEPA: Jurnal Sosial Ekonomi Pertanian Dan Agribisnis*, 17(1), 40. <https://doi.org/10.20961/sepa.v17i1.39863>
- 7) Fikri, M. R., & Rahmini, N. (2020). Analisis Willingness To Pay Pada Wisata Bukit Matang Kaladan Desa Tiwingan Lama Kecamatan Aranio Kabupaten Banjar Kalimantan Selatan. *Jurnal Ilmu Ekonomi Dan Pembangunan*, 21(1), 1–9.
- 8) Gumilar, I. (2019). WILLINGNESS TO PAY MASYARAKAT TERHADAP SUMBERDAYA TERUMBU KARANG DI KAWASAN KONSERVASI PERAIRAN PULAU BIAWAK. *Sosiohumaniora*, 21(3), 342–348. <https://doi.org/10.24198/sosiohumaniora.v21i3.21371>
- 9) Hadhi Priambodo, L., Manajemen, D., & Ekonomi dan Manajemen, F. (2014). Analisis Kesiediaan Membayar (Willingness to Pay) Sayuran Organik dan Faktor-Faktor yang Mempengaruhinya. *V(1)*, 1–14.
- 10) Hasan-Basri, B., Samdin, Z., & Ghani, A. N. A. (2020). Willingness to Pay for Conservation of Mangrove Forest. *Jurnal Ekonomi Malaysia*, 54(3). <https://doi.org/10.17576/JEM-2020-5403-07>
- 11) Hidayah, L., & Ayu Nuning Farida Afiatna, F. (2021). Analisis Kesiediaan Membayar Willingness To Pay (Wtp) Konsumen Terhadap Produk Batik Tulis Khas Jombang. *Jurnal Penelitian Bidang Inovasi & Pengelolaan Industri*, 1(01), 42–50. <https://doi.org/10.33752/invantri.v1i01.1830>
- 12) Kevin, E., & Arianasari, V. (2021). Penilaian Ekonomi Penangkaran Rusa Di Taman Hutan Raya Wan Abdul Rachman (Tahura War) Menggunakan Metode Kesiediaan Membayar. *Wahana Forestra: Jurnal Kehutanan*, 16(1), 37–46. <https://doi.org/10.31849/forestra.v16i1.5439>
- 13) KLHK. (2022). MANGROVE INDONESIA UNTUK DUNIA. *Wibsite, Artikel, Berita, Lingkungan, Pengendalian Kerusakan Lingkungan*. <https://kanalkomunikasi.pskl.menlhk.go.id/mangrove-indonesia-untuk-dunia/>
- 14) Lestiani, K., Jati, D. R., & Jumiati, J. (2022). Analisis Kesiediaan Membayar (Willingness To Pay) Masyarakat Kecamatan Sambas Terhadap Biaya Retribusi Kebersihan. *Jurnal Teknologi Lingkungan Lahan Basah*, 10(2), 164. <https://doi.org/10.26418/jtlb.v10i2.56105>
- 15) Litolily, L. I., Mardiatmoko, G., & Pattimahu, D. V. (2020). Analysis of Mangrove Forest Economic in Kotania Bay, West Seram District. *Jurnal Hutan Pulau-Pulau Kecil*, 4(1), 22–30. <https://doi.org/10.30598/jhppk.2020.4.1.22>
- 16) Maulana, M. F. (2021). Economic Value and Perception of Visitors Mangrove Bee Jay Bakau Resort (BJBR) Probolinggo, East Java. *Economic and Social of Fisheries and Marine Journal*, 008(02), 280–294. <https://doi.org/10.21776/ub.ecsofim.2021.008.02.10>
- 17) Medida, V. A., & Purnomo, A. (2021). Willingness To Pay Pengunjung Wisatawan Andaman Boonpring Dalam Upaya Pelestarian Lingkungan. *Geodika: Jurnal Kajian Ilmu Dan Pendidikan Geografi*, 5(2), 226–235. <https://doi.org/10.29408/geodika.v5i2.3998>
- 18) Mohamad, N., & Lahay, R. J. (2021). Analisis Nilai Kelestarian Lingkungan Obyek Wisata Tasik Ria Berdasarkan Willingness To Pay. *Ideas: Jurnal Pendidikan, Sosial, Dan Budaya*, 7(4), 277. <https://doi.org/10.32884/ideas.v7i4.475>
- 19) Mukhlisi, M. (2018). POTENSI PENGEMBANGAN EKOWISATA MANGROVE DI KAMPUNG TANJUNG BATU, KECAMATAN PULAU DERAWAN, KABUPATEN BERAU (Potential Development of Mangrove Ecotourism in Tanjung Batu Village, Derawan Island District, Berau Regency). *Jurnal Manusia Dan Lingkungan*, 24(1), 23. <https://doi.org/10.22146/jml.22939>
- 20) Noviati Sadikin, P., Mulatsih, S., Pramudya Noorachmat, B., & Susilo Arifin, H. (2017). Analisis Willingness-To-Pay Pada Ekowisata Taman Nasional Gunung Rinjani. *Jurnal Analisis Kebijakan Kehutanan*, 14(1), 31–46. <https://doi.org/10.20886/jakk.2017.14.1.31-46>
- 21) Nurkhalifah, A., Hakim, M. H. R., Syaefudin, N. R. C., Irbah, A., Nugroho, S. F., Erliyani, E., Raihani, T. E. N. B., Hermawan, H. R., Putri, C. F., & Pradita, R. P. (2022). Analisis Willingness To Pay Pengunjung Wisata Rowo Jombor, Bayat, Klaten. *SEGMEN: Jurnal Manajemen Dan Bisnis*, 18(2), 337–351. <https://doi.org/10.37729/sjmb.v18i2.7787>
- 22) Pertiwi, T. A., Noechdijati, D. E., & Dharmawan, B. (2022a). ANALISIS KESEDIAAN MEMBAYAR (WILLINGNESS TO PAY) PENGUNJUNG DALAM UPAYA PENGEMBANGAN AGROWISATA “SWEETBERRY” DI KABUPATEN CIANJUR. *Jurnal Ekonomi Pertanian Dan Agribisnis*, 6, 500–518.

## Recreational Value of Mangrove Ecotourism: A Case Study in Jerowaru East Lombok, Indonesia

- 23) Pratiwi, S. R., & Kasmawati, K. (2019). Willingness To Pay Masyarakat dalam Mengurangi Dampak Sampah Rumah Tangga. *Jurnal Ekonomi Pembangunan*, 8(3), 191–198. <https://doi.org/10.23960/jep.v8i3.59>
- 24) Pulido-Fernández, J. I., & López-Sánchez, Y. (2016). Are tourists really willing to pay more for sustainable destinations? *Sustainability (Switzerland)*, 8(12). <https://doi.org/10.3390/su8121240>
- 25) Qowi, A., & Arianti, Ff. A. (2021). Analisis Willingness to Pay Pengunjung dan Peningkatan Sarana Prasarana Objek Wisata Grand Maerokoco di Kota Semarang. *Diponegoro Journal of Economics*, 9, 155–166. <https://ejournal3.undip.ac.id/index.php/jme/article/view/31580>
- 26) Riana, E. T., Mukson, & Roessali, W. (2019). ANALYSIS CONSUMER WILLINGNESS TO PAY OF VARIOUS TYPES OF ORGANIC RICE IN SEMARANG CITY (CASE IN THE GELAE SIGNATURE MODERN MARKET). 3, 689–700.
- 27) Shaputra, A., Mursalin, A., & Syaiful, I. A. (2022). Willingness to Pay Wisatawan Terhadap Pengembangan Pariwisata Candi Muaro Jambi. *Jurnal Tanah Pilih*, 2(2), 153–168.
- 28) Simarmata, V., Damanik, D., & Purba, D. G. (2022). Analisis Willingness to Pay dan Persepsi Wisatawan Terhadap Konservasi Gajah Aek Nauli di Kabupaten Simalungun. *Jurnal Ekuilnomi*, 4(1), 1–13. <https://doi.org/10.36985/ekuilnomi.v4i1.332>
- 29) Sugiyono. (2011). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D)*. Alfabeta.
- 30) Yulianti, Y., Kamal, E., & Damanhuri, H. (2022). Analisis Kesiediaan Membayar Wisatawan pada Objek Wisata Bahari Pulau Sirandah, Kota Padang. *Jurnal Sosial* <http://ejournal-balitbang.kkp.go.id/index.php/sosek/article/view/10297%0Ahttp://ejournal-balitbang.kkp.go.id/index.php/sosek/article/viewFile/10297/8001>



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## Teaching Games for Understanding (TGfU) Learning Model on Improving Learning Outcomes of Volleyball Material



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**ABSTRACT:** The purpose of the study was to determine: (1) the effect of TGfU learning model on improving volleyball learning outcomes and (2) the difference in volleyball learning outcomes between the experimental group and the control group. The method uses an experiment with a "pre-test post-test control group design". The sampling technique is simple random sampling, totaling 33 students as an experimental class with TGfU learning model treatment and 34 students as a control class. The instruments used were cognitive tests and psychomotor tests. Data analysis using t test at 5% significance level. The results of the study: (1) There is a significant effect of the TGfU learning model on improving volleyball learning outcomes, the  $t_{\text{value}}$  is  $12.158 > t_{\text{table}} 1.693$ , and the significance is  $0.000 < 0.05$ . (2) There is a significant difference in volleyball learning outcomes between the experimental group and the control group, the  $t_{\text{value}}$  is  $9.617 > t_{\text{table}} 1.668$ , and the significance is  $0.000 < 0.05$ .

**KEYWORDS:** TgfU, learning outcomes, volleyball

### INTRODUCTION

One of the subjects taught at school is Physical Education (PE). PE emphasizes on motor skills and physical activity as self-expression, with physical activity or movement activity as far as it is for goals, decision making and so on and can be modified in learning (Salian & Kumar, 2022) (Corbin et al., 2020). PE has a comprehensive goal that includes physical, cognitive, affective, emotional, social and moral aspects (Chng & Lund, 2018) (Ciotto & Gagnon, 2018). Assessment in Physical Education Sports and Health has an important role in the learning process (Borghouts et al., 2017). One of the Physical Education Sports and Health materials at school is volleyball. Volleyball games have several basic techniques, namely service, passing, smash, and block (Junior, 2018) (Zonifa, 2020) (Jondry Hiskya, 2019) (Siva & Rajan, 2018) (Pekas et al., 2019).

When learning PE volleyball material takes place, students look less motivated when participating in learning. Students find it difficult to understand the material provided by the teacher. Teachers are required to be able to package learning materials in the form of effective and efficient learning media according to the characteristics and provisions of the applicable curriculum, so that students are interested in following the learning provided by the teacher. The success of the curriculum lies largely with the teacher. The teacher factor focuses on how the teacher makes a lesson plan which is related to the learning model and media that will be given to students. A learning approach where students are expected to think scientifically, critically, logically, and objectively in accordance with existing facts.

The interaction between educators and students that is carried out consciously, planned both inside and outside the room to improve the ability of students is determined by learning outcomes. Evaluation of learning outcomes is a process to determine the value of student learning through assessment activities and / or measurement of learning outcomes. The main objective is to determine the level of success achieved by students after participating in a learning activity, where the level of success is then marked with a value scale in the form of letters or words or symbols.

PE learning if done with a good model and approach not only contributes to the psychomotor and affective aspects but can also contribute to the cognitive aspects in critical thinking students. Learning in the 21st century requires students to have several high-level thinking skills, one of which is critical thinking skills. Critical thinking skills are skills that are focused on making decisions, analyzing, and evaluating a problem that can be accounted for. The term 21st century skills means a set of knowledge, skills, work habits, and character traits that are most important for living a perfect life in today's world, especially in academic life and future careers (Rahman, 2019).

Teachers in delivering material are very diverse, especially in the learning model and also the approach the teacher uses in delivering material so that students can accept what the teacher says well. Pedagogical competence or the teacher's teaching

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ability which is reflected in the approaches and methods also the ways owned by the teacher in this case the teacher is still not optimal. Teaching approaches and methods that are quite varied have not been fully studied by teachers to support their pedagogical abilities. Teachers' educational backgrounds and experiences vary greatly, resulting in differences that occur in the implementation in the teaching and learning process carried out by teachers. One of the learning models that can be applied is Teaching Games for Understanding (TGfU).

PE learning with TGfU approach can be used as one of the efforts to make students enthusiastic and actively participate in PE learning. TGfU has a great impact on cognitive learning, pursuing to train students who are competent, able to make decisions and solve tactical problems (García-Castejón et al., 2021) (Cocca et al., 2020). Applying TGfU actively supports teaching and motivates students towards learning (Alcalá & Garijo, 2017), and increase the exercise time of moderate and vigorous physical activity (Wang & Wang, 2018).

The study (Gil-Arias et al., 2017), found that after implementing the TGfU program for 16 sessions, an increase in motivation and intention to be physically active was observed in students. Evidence of TGfU's contribution to adolescent health as responsibility, basic psychological needs, and self-determined motivation predict intentions to be physically active and a healthy lifestyle. Scientific evidence demonstrates TGfU's ability to enhance motor, cognitive and affective learning (Bracco et al., 2019). The Study (Gaspar et al., 2021) showed that boys and girls taught through a TGfU unit with questions would report higher scores on all variables post-intervention compared to pre-intervention than boys and girls taught through a TGfU unit without questions. The TGfU unit without questions group only showed significant differences on the intention to be physically active variable after the implementation of the intervention program.

## METHODS

This research is a type of quasi-experimental research. The design used in this research is "pre-test post-test control group design". In this design there are two groups that are randomly selected, then given a pretest to find out the initial state of whether there is a difference between the experimental group and the control group. The population in this study were grade XI students. Sampling in this study was done by simple random sampling. There were 33 students of XIA class as the experimental class with TGfU learning model treatment and 34 students of XIB class as the control class. The instruments used in this study were cognitive tests and psychomotor tests. Hypothesis testing using t-test with the help of SPSS 23 program.

## RESULTS

The research was conducted for 4 meetings. Pretest was conducted before the application of learning, then posttest was conducted. Descriptive statistics of pretest and posttest volleyball learning outcomes between the experimental group and control group are presented in Table 1:

**Table 1. Results of Descriptive Analysis of Pretest and Posttest Statistics between Experimental and Control Groups**

Groups	N	Min	Max	Mean	SD
Experiment Pretest	33	33.33	46.67	40.40	4.99
Experiment Posttest	33	46.67	73.33	58.99	8.52
Control Pretest	34	33.33	46.67	40.59	5.03
Control Posttest	34	26.67	53.33	40.78	6.92

Based on Table 1 above, it shows that the pretest of the experimental group's volleyball learning outcomes was 40.00 when the posttest was 58.99 and the control group's pretest was 40.59 when the posttest was 40.78.

The data normality test used the Shapiro-Wilk method. The normality test was analyzed using SPSS version 23.0 for windows software with a significance level of 5% or 0.05. The results are in Table 2:

**Table 2. Normality Test Analysis Results**

Groups	Significance	Description
Experiment Pretest	0,062	Normal
Experiment Posttest	0,235	Normal
Control Pretest	0,068	Normal
Control Posttest	0,128	Normal

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Based on the statistical analysis of the normality test that has been carried out using the Shapiro-Wilk test, in all pretest and posttest data obtained from the results of the data normality test with a significance value ( $p$ )  $> 0.05$ , which means that the data is normally distributed.

The homogeneity test is carried out to test the equality of several samples that are homogeneous or not. The homogeneity test is intended to test the similarity of variance between pretest and posttest using the help of SPSS 23, the results are in Table 3:

**Table 3. Homogeneity Test Analysis Results**

Groups	Sig.	Description
Pretest	0,857	Homogen
Posttest	0,133	Homogen

Based on the analysis results in Table 3, it can be seen that the pretest-posttest obtained sig.  $p > 0.05$ , so the data is homogeneous.

The first hypothesis reads "There is a significant effect of the inquiry learning model on improving volleyball learning outcomes". The research conclusion is declared significant if the  $t_{\text{value}} > t_{\text{table}}$  and sig value is smaller than 0.05 ( $\text{Sig} < 0.05$ ). The hypothesis test results are presented in Table 4:

**Table 4. T-test Results of Pretest and Posttest of Experimental Group**

Groups	Mean	$t_{\text{count}}$	$t_{\text{table}}$	sig
Pretest	40,40	12,158	1,693	0,000
Posttest	58,99			

Based on Table 4, it can be seen that  $t_{\text{count}}$  12.158 and  $t_{\text{table}}$  (df 32) 1.693 with a significance value ( $p$ ) of 0.000. Because  $t_{\text{count}}$  12.158  $> t_{\text{table}}$  1.693, and the significance value of 0.000  $< 0.05$ , these results indicate there is a significant difference. Thus the alternative hypothesis which reads "There is a significant effect of the TGfU learning model on improving volleyball learning outcomes", is accepted.

The second hypothesis reads "There is a significant difference in volleyball learning outcomes between the experimental group and the control group". The research conclusion is declared significant if the  $t_{\text{value}} > t_{\text{table}}$  and sig value is smaller than 0.05 ( $\text{Sig} < 0.05$ ). The results of the hypothesis test are presented in Table 5:

**Table 5. T-test Results of Experimental Group and Control Group**

Groups	Mean	$t_{\text{count}}$	$t_{\text{table}}$	sig
Experiment Class	58,99	9,617	1,668	0,000
Control Class	40,78			

Based on Table 5, it can be seen that  $t_{\text{count}}$  9.617 and  $t_{\text{table}}$  (df 65) 1.668 with a significance value ( $p$ ) of 0.000. Because  $t_{\text{count}}$  9.617  $> t_{\text{table}}$  1.668, and the significance value of 0.000  $< 0.05$ , these results indicate that there is a significant difference. Thus the alternative hypothesis ( $H_a$ ) which reads "There is a significant difference in volleyball learning outcomes between the experimental group and the control group", is accepted. This means that the experimental group with TGfU learning model treatment is better than the control group towards improving volleyball learning outcomes, with an average difference of 18.21.

## DISCUSSION

Based on hypothesis testing, it is known that there is a significant effect of the TGfU learning model on the learning outcomes of PE volleyball material. The TGfU learning model group is better than the control group. Empirical studies on hybrid longitudinal programs of SE and TGfU models, developing different content, such as football, tennis, badminton, softball, and volleyball, have shown a significant increase in intention to be physically active, creating good sports adherence to improve future healthy habits (Gil-Arias et al., 2017) improve students' affective, cognitive, and physical domains.

The Study (Stephanou & Karamountzos, 2020) reported that the TGfU group of students, compared to the technical teaching group of students, reported higher metacognition in perceptual knowledge, information management, conditional knowledge,



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problem-solving strategies and evaluation, and performed better in the game. Problem solving in a changing game environment is critical to the TGfU pedagogical model (Harvey & Jarrett, 2014), and therefore one of the objectives is to direct students towards analyzing different game situations. The TGfU model encourages the simultaneous development of physical, cognitive and emotional skills and to promote social, physical and cognitive learning alongside tactics in contextual situations using the pedagogical principles of sampling, modification (representation and exaggeration) and tactical complexity (Dyson et al., 2004). Unlike technique-oriented approaches, TGfU contributes to improving students' tactical awareness and performance. (Dania et al., 2017), along with feelings of autonomy, competence, and self-efficacy in small-sided games.

TGFU is a true instructional learning model to discover how children understand sports through the essential ideas of the game. TGFU does not emphasize learning on the strategy of playing sports, so that learning is clearer and according to the child's stage of formation. TGFU learning is close to zero in addition to strategic methodology with little regard for necessary strategies, playing in all situations in the game, expanding creativity in play, speed in making choices in the game and focusing on different varieties of games. This methodology will encourage a shift in the direction of learning towards enhancing the true nature of practice with the aim that the true purpose of schooling encompassing the intellectual, soulful and psychomotor spheres can be achieved and run properly. This kind of hybridization can be useful to help teachers access a multi-model approach in their classrooms that adapts to the current educational framework (Casey & MacPhail, 2018).

The Study (Harvey et al., 2020) emphasizes the need for pedagogical models such as TGfU that aim to increase students' capacity to evaluate game situations and develop tactical thinking. (Barba-Martín et al., 2020) states that TGfU is based on four pedagogical principles. These principles are: (1) transfer, which is achieved through the use of global games, finding tactical aspects common to different sports; (2) modification-representation, consisting of adapting games to the age or skill level of the student body, maintaining tactical structure; (3) modification-overload; this principle raises the possibility of incorporating new rules or modifying them to help assimilate key tactical content; and (4) tactical complexity, where the tasks proposed should be based on a progression in tactical difficulty.

Learning outcomes are the basis for measuring and reporting student academic achievement, and are key in developing more effective subsequent learning designs that have alignment between what students will learn and how they will be assessed (Retnawati et al., 2018). As the end product of the learning process, learning outcomes are considered to show what students know and develop (Wanner & Palmer, 2018). The existence of PE in schools is not only to improve health and physical fitness for all students, but to provide experiences in the cognitive, affective and psychomotor fields for these students. Here the teacher is required to determine the appropriate learning model for students. This is because teachers must face students who have different characteristics. For this reason, teachers must have a lot of creativity in packaging a learning material so that students like and participate actively in every lesson.

### CONCLUSIONS

The results showed that (1) There is a significant effect of TGfU learning model on improving volleyball learning outcomes,  $t_{\text{value}} 12.158 > t_{\text{table}} 1.693$ , and significance  $0.000 < 0.05$ . (2) There is a significant difference in volleyball learning outcomes between the experimental group and the control group, the  $t_{\text{value}}$  is  $9.617 > t_{\text{table}} 1.668$ , and the significance is  $0.000 < 0.05$ . In this study, writing realizes that there are still many shortcomings, especially due to limitations in the study, to improve volleyball learning outcomes not only learning models can be applied, there are still many other factors that can support to improve it. For development related to the research that the author has done, it can be done using tools, methods, and samples with different levels.

### REFERENCES

- 1) Alcalá, D. H., & Garijo, A. H. (2017). Teaching games for understanding: A comprehensive approach to promote student's motivation in physical education. *Journal of Human Kinetics*, 59(1), 17–27.
- 2) Barba-Martín, R. A., Bores-García, D., Hortigüela-Alcalá, D., & González-Calvo, G. (2020). The application of the teaching games for understanding in physical education. Systematic review of the last six years. *International Journal of Environmental Research and Public Health*, 17(9), 3330.
- 3) Borghouts, L. B., Slingerland, M., & Haerens, L. (2017). Assessment quality and practices in secondary PE in the Netherlands. *Physical Education and Sport Pedagogy*, 22(5), 473–489.
- 4) Bracco, E., Lodewyk, K., & Morrison, H. (2019). A case study of disengaged adolescent girls' experiences with teaching games for understanding in physical education. *Curriculum Studies in Health and Physical Education*, 10(3), 207–225.

## Teaching Games for Understanding (TGfU) Learning Model on Improving Learning Outcomes of Volleyball Material

- 5) Casey, A., & MacPhail, A. (2018). Adopting a models-based approach to teaching physical education. *Physical Education and Sport Pedagogy*, 23(3), 294–310.
- 6) Chng, L. S., & Lund, J. (2018). Assessment for learning in physical education: The what, why and how. *Journal of Physical Education, Recreation & Dance*, 89(8), 29–34.
- 7) Ciotto, C. M., & Gagnon, A. G. (2018). Promoting social and emotional learning in physical education. *Journal of Physical Education, Recreation & Dance*, 89(4), 27–33.
- 8) Cocca, A., Carbajal Baca, J. E., Hernández Cruz, G., & Cocca, M. (2020). Does a Multiple-Sport Intervention based on the TGfU pedagogical model for Physical Education increase physical fitness in primary school children? *International Journal of Environmental Research and Public Health*, 17(15), 5532.
- 9) Corbin, C. B., Kulinna, P. H., & Yu, H. (2020). Conceptual physical education: A secondary innovation. *Quest*, 72(1), 33–56.
- 10) Dania, A., Kossyva, I., & Zounhia, K. (2017). EFFECTS OF A TEACHING GAMES FOR UNDERSTANDING PROGRAM ON PRIMARY SCHOOL STUDENTS' PHYSICAL ACTIVITY PATTERNS. *European Journal of Physical Education and Sport Science*.
- 11) Dyson, B., Griffin, L. L., & Hastie, P. (2004). Sport education, tactical games, and cooperative learning: Theoretical and pedagogical considerations. *Quest*, 56(2), 226–240.
- 12) García-Castejón, G., Camerino, O., Castañer, M., Manzano-Sánchez, D., Jiménez-Parra, J. F., & Valero-Valenzuela, A. (2021). Implementation of a hybrid educational program between the model of personal and social responsibility (TPSR) and the teaching games for understanding (TGfU) in physical education and its effects on health: an approach based on mixed methods. *Children*, 8(7), 573.
- 13) Gaspar, V., Gil-Arias, A., Del Villar, F., Práxedes, A., & Moreno, A. (2021). How TGfU influence on students' motivational outcomes in physical education? A study in elementary school context. *International Journal of Environmental Research and Public Health*, 18(10), 5407.
- 14) Gil-Arias, A., Harvey, S., Cárceles, A., Práxedes, A., & Del Villar, F. (2017). Impact of a hybrid TGfU-Sport Education unit on student motivation in physical education. *PloS One*, 12(6), e0179876.
- 15) Harvey, S., Gil-Arias, A., & Claver, F. (2020). Effects of teaching games for understanding on tactical knowledge development in middle school physical education. *Journal of Physical Education and Sport*, 20(3), 1369–1379.
- 16) Harvey, S., & Jarrett, K. (2014). A review of the game-centred approaches to teaching and coaching literature since 2006. *Physical Education and Sport Pedagogy*, 19(3), 278–300.
- 17) Jondry Hiskya, H. (2019). Level of Understanding of Education Health and Recreation Students on Basic Techniques and Volleyball Game Regulation. *International Journal of Mechanical Engineering and Technology*, 10(3).
- 18) Junior, N. K. M. (2018). Specific periodization for the volleyball: a training organization. *MOJ Sports Med*, 2(3), 108–111.
- 19) Pekas, D., Mačak, D., & Zobenica, A. K. (2019). Small-sided games are more effective than instructional training for improving vertical jump performance and passing in young volleyball players. *EQOL J*, 11, 13–21.
- 20) Rahman, M. (2019). 21st century skill'problem solving': Defining the concept. Rahman, MM (2019). 21st Century Skill "Problem Solving": Defining the Concept. *Asian Journal of Interdisciplinary Research*, 2(1), 64–74.
- 21) Retnawati, H., Djidu, H., Kartianom, A., & Anazifa, R. D. (2018). Teachers' knowledge about higher-order thinking skills and its learning strategy. *Problems of Education in the 21st Century*, 76(2), 215.
- 22) Salian, M. P., & Kumar, A. (2022). Physical Education is a Philosophy of Health. *IJFMR-International Journal For Multidisciplinary Research*, 4(4).
- 23) Siva, M., & Rajan, R. D. (2018). Effect of specific drill training programme on skill performances among volleyball players. *Asian Journal of Multidimensional Research (AJMR)*, 7(2), 1147–1151.
- 24) Stephanou, G., & Karamountzos, D. (2020). Enhancing Students' Metacognitive Knowledge, Metacognitive Regulation and Performance in Physical Education via TGFU. *Research in Psychology and Behavioural Sciences*, 8(1), 1–10.
- 25) Wang, M., & Wang, L. (2018). Teaching Games for Understanding intervention to promote physical activity among secondary school students. *BioMed Research International*, 2018.
- 26) Wanner, T., & Palmer, E. (2018). Formative self-and peer assessment for improved student learning: the crucial factors of design, teacher participation and feedback. *Assessment & Evaluation in Higher Education*, 43(7), 1032–1047.
- 27) Zonifa, G. (2020). A volleyball skills test instrument for advanced-level students. *Journal of Physical Education & Sport*, 20.



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## Application Development Basic Technical Guidelines for Football Goalkeepers U 10-15 Years Based on Android



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**ABSTRACT:** Efforts to improve the basic technique of goalkeepers are a basic component that is very important in supporting the achievements of athletes themselves, one of which is developing Android-based applications. This study aims to develop an application media for basic goalkeeper technique guidelines aged 10-15 years based on Android to make it easier for children to practice independently or coaches can learn good and correct goalkeeper techniques. This research is a Research and Development research. There are several stages carried out in the process of developing this media, namely: Information collection, planning, initial product development, expert validation, small-scale trials, large-scale trials, final product revisions. Subjects of a small-scale trial conducted on 5 coaches and 5 goalkeepers at the SSO real madrid foundation. And large-scale trials were carried out on 10 coaches and 10 goalkeepers at SSB Baturetno, SSB Gelora Muda and SSB 89 Selindung. The instrument used in collecting this development data is in the form of questionnaires. The data analysis technique used is a descriptive statistical analysis technique. The results showed that the application development media for basic goalkeeper technique guidelines aged 10-15 years based on Android is suitable to be used as a reference for student learning and media used by coaches to train. This is shown from the results of assessments that have been carried out by material experts, media experts and field trials. The final results obtained from the study showed that the application of the basic goalkeeper technique guidelines was declared "Eligible" based on the percentage obtained, namely from material experts 81%, media experts 85%, small group trial results 85% and large group trial results 88%.

**KEYWORDS:** Development, Android, Basic Techniques, Goalkeeper, Football.

### I. INTRODUCTION

Over time, science technology is very influential in human life today. There is a lot of evidence that we can see today and various advanced technological tools were created to help humans move [1]. In sports, technology is also needed to help coaches achieve the highest achievements of their athletes. Technology has also been widely used in the field of sports, especially football, in the current era science and technology plays an important role for athletes, coaches, and managers [2].

In the game of soccer there are many aspects that must be considered such as technique, tactics, mental and physical condition. These aspects must be mastered by each player in depth. Modern football is now very much shown by European teams, the purpose of modern football is how to put goals into the opponent's goal as much as possible using good teamwork techniques, therefore mastery of technique, tactics, mental and physical condition is very important [3]. Technique is the player's ability to carry out movements properly and correctly in the process of training and matches so that a good player must be required to master good basic techniques [4]. The game of soccer is not spared from tactics, tactics are strategies that will be planned and implemented in a match, therefore to make good tactics must require compact, tough and strong teamwork, meaning that in playing soccer requires players who can master good techniques to support good tactics [5].

Technique is an ability that must be mastered by every player on the ball, so that to play well every player needs to improve and develop the ability of the technique [6]. There are 2 kinds of soccer playing techniques, namely techniques with the ball and without the ball [7]. There are several kinds of techniques in playing top-composed soccer; (1) Basic techniques-without balls-include sprint running, agility feinting movements without the ball, jumping or jumping and other special movements. (2) Techniques with the ball include kicking the ball, heading the ball, controlling the ball, catching the ball, and dribbling, as well as movements—specifically for the goalkeeper. The goalkeeper's technique is very important, the goalkeeper "must master all the basic techniques of the ball because a goalkeeper is allowed to use all members of his ball or catch the ball but only within the penalty area of his team. A goalkeeper must play optimally in every match, because without a reliable goalkeeper, the goal that

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is guarded will be conceded by the opponent causing the team to lose. As said by [8] The goalkeeper is the most important position in football that requires a special outlook and an excellent program. To become a good goalkeeper, it is also very important that the goalkeeper must learn techniques and personal values such as confidence, character and assertiveness which all need to be taught from an early age [9]. Therefore, the goalkeeper must be able to master the techniques and needs of the goalkeeper, because the goalkeeper is someone who determines the victory of a team [10].

The success of the goalkeeper can be seen from his excellent skillful and coordinated ability when making saves on his goal effectively and efficiently so as not to cause injury to him when jumping and falling [11]. A goalkeeper must have more needs than other players because goalkeepers are required to have complex skills. In addition to saving the goal from the opponent's attack, the goalkeeper must dare to make decisions when intersaving the ball from the opponent and also as a builder of the initial attack of a team that starts from the goalkeeper like modern football like this [12].

In Indonesia, soccer is a game that is in great demand by children [13]. The number of football coaches established by institutions and the private sector, these are good things for the development of Indonesian football, so that this coaching can create players from a young age, but the source of the problem is that children's understanding of the basic material of football, especially goalkeepers, is still minimal [14]. Children only depend on training at SSB to improve their abilities. The students' low understanding and knowledge of the material makes students dependent on their trainers at SSB, even when the training time used by trainers to discuss with students is very little. Lack of references or learning media makes it difficult for children to develop their talents individually or independently. Even the coach's training of his protégés such as passing, dribbling, control is an exercise that is generally given to all players, but not specifically for goalkeepers, based on research [15] One of the factors that cause children to feel bored / bored in learning is that the method of exercise / learning is less varied so that it is not supported by learners, training / learning media that is less supportive and there are still many memorizations. It will be saturated if the training is presented like that, for now there are no technological tools presented specifically for goalkeepers.

In the modern era, what has used technology, therefore, must be created an application that can be used as a learning resource to improve the technique and keterampilan\_seorang of goalkeepers. The media used is an application as a learning resource, especially for goalkeepers [16]. The material presented in this android application can be a solution in coaching goalkeepers at a young age, especially for beginners. This application has mater about basic goalkeeper techniques, videos, pictures, and quizzes to increase children's knowledge and insight [17]. So that the application can be used to reference student learning and make it easier for students to know the basic techniques of goalkeepers. This application media can be accessed via Android offline or online. With a very attractive appearance will make students more interested in using this media and not make students bored. Based on the results of research by [18] said that learning using the application model can increase and increase the enthusiasm of children's learning and with the application can eliminate boredom when learning. If students are happy with this application, so students will be very easy to understand the material in the media, and of course most students now have smartphones even though they still have their parents. Based on the results of the study [19]. Android media is very influential on learning during this pandemic and is a very appropriate media for distance learning or independent learning, here is one of the benefits of using Android, namely as a tool to find information and a tool to add insight, of course using Android is very easy for students in the learning process independently, especially during the Covid-19 pandemic.

Based on this background, researchers try to develop new media in Indonesia yaitu\_aplikasi the development of goalkeeper techniques in the modern era based on android for coaches and players, so that coaches and players can learn or understand how to do gawanag techniques well, with existing technology can be taken anywhere, namely using android. With this media, it is expected to arouse interest and motivation for children.

## II. METHOD

This research is a type of development research or RnD aimed at creating an application for basic U-10-U 12 goalkeeper technique guidelines based on the Android system, so that it can be accessed by all soccer players from coaches and players, especially goalkeepers. This application has a form of android-based material to train the basic techniques of goalkeepers in soccer games.

This study aims to develop a media application for basic technique guidelines for goalkeepers aged 10-15 years based on Android. The research model used in this development is a type of borg development, and there are ten activities/stages, namely: 1) Research and information collection. 2) Research planning. 3) Initial product development. Development of learning materials and evaluation instruments. 4) Preparatory field trials. 5) Revision of the results of preparatory field trials. 6) Main field test 7) Revision of main field test results. 8) Operational field test. 9) Revision of the final product. 10) Dissemination. Then the research and procedures developed by researchers into 7 activities or stages of development, including: 1) Information

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Collection, 2) Planning Arrangement, 3) Initial Product Development, 4) Expert Validation, 5) Small-scale field trials, 6) Large-scale field trials, 7) Final Product Revision.

Product trials are intended to collect data that is used as a basis for determining the quality of the products produced. The data obtained from the trial was used to improve and perfect the products produced in this study, including: 1) Trial design, 2) Test Subjects.

The data collection technique used in this development research uses questionnaire instruments. Questionnaires can be in the form of questions/statements or closed. There are 3 instruments used in this study, namely:

### 1. Instrument I

The first instrument is a material expert evaluation sheet in the form of a material expert assessment questionnaire related to the material of basic football techniques. The results of this material expert assessment will be used as revision material in the development of Android-based products.

### 2. Instrument II

The second instrument is a media expert in the form of a learning media expert assessment sheet related to the appearance and products made. This instrument is used for android-based media revision materials to make them suitable for use.

### 3. Instrument III

The third instrument is an evaluation sheet or questionnaire aimed at students or trainers to find out whether or not the android-based learning application media that will be developed.

After the data from the trial results have been collected, data analysis data processing is carried out. Data analysis techniques from the feasibility assessment of the application of basic goalkeeper techniques U-10 – 15 years based on the Android mobile operating system. Furthermore, the application of basic techniques for goalkeepers U-10 – 15 years based on the android mobile operating system feasibility in this Development-based research is classified in four feasibility categories using the following Scale.

**Tabel 1. Normative Eligibility Percentage**

No.	Scores in presentations	Eligibility Categories
1.	<40%	Not worth it
2.	40% - 55%	Less viable
3.	56% - 75%	Pretty decent
4.	76% - 100%	Proper

## III. RESULT

### 1. Expert Validation

The development of this Android-based application is validated by lecturers who are experts in their fields, namely the validation of material experts and media experts. Validators are asked to assess whether the initial product that has been designed is suitable for use or not. Then the input results from the validation are used as a reference for the initial product revision of the Android-Based Basic Goalkeeper Technical Guidelines Application for 10-15 Years. This expert review resulted in the following revisions:

#### a. Material Expert Validation Data

The material expert who became a validator in this study was Drs. Herwin, M. Pd. who has expertise in the field of football. Here are the results and revisions of the application according to the improvements:

#### 1) Grammar and writing

Based on validation from material experts, there are several revisions and suggestions that grammar and writing on some displays be improved, this is so that application users do not misinterpret words or words in the application.

#### Before Revision



After Revision



Figure 1. Home Screen Display and Goalkeeper Material

2) Addition of Each Sub Technique

The addition of each sub-technique from preparation, implementation, advanced motion and full video technique, this is so that application users can find out from the beginning of preparation to perform techniques to advanced motion. So that the video in the application can be easily understood by users.

Before Revision



After Revision



Figure 2. Sub Technique Display

3) Material expert revised data

Revised data from material experts is used as evaluation material to improve the products developed. The percentage obtained from material experts from the aspect of feasibility of material content is 77%, and from the aspect of truth of material content is 100%. The total score percentage is 81% with good/decent category.

Table 2. Application Assessment Results Data by Material Experts

No.	Assessed aspects	Scores obtained	Max Score	Percentage	Category
1.	Eligibility of Content	28	36	77	Good/Worth It
2.	Correctness of the Concept	7	7	100	Good/Worth It
<b>Total Score</b>		35	43	81	Good/Worth It

b. Media Expert Validation Data

Media experts who became validators in this study were Nawan Primasoni, S. Pd., Kor., M.Or. who have expertise in technology. This validation process gets suggestions and revisions from media experts so that it is feasible to use according to the improvements, here are the results and revisions of the application according to the improvements:

1) Addition of Goalkeeper Rescue Video

The addition of this video is made so that users are more interested in the application, with many interesting features so that users can enjoy the application as it functions.

Before Revision



After Revision

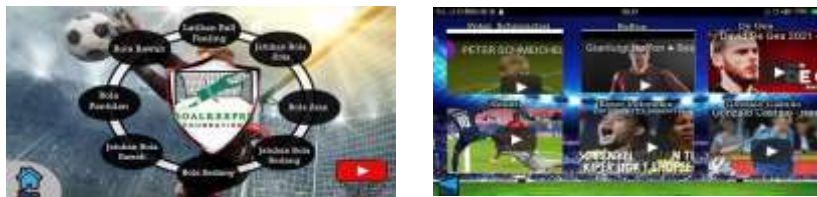


Figure 3. Home Screen Display and Goalkeeper Material

2) Data validated by media experts

Revised data from media experts is used as evaluation material to improve the product developed. The percentage obtained from media experts from the display aspect is 86%, from the linguistic aspect 81%, the programming aspect 90%, and the user aspect 85%. The total score percentage is 85% with good/decent category.

Table 3. Application Assessment Results Data by Material Experts

No.	Assessed aspects	Scores obtained	Max Score	Percentage	Category
1.	Display	31	36	86	Good/Worth It
2.	Language	13	16	81	Good/Worth It
3.	Programming	18	20	90	Good/Worth It
4.	User	17	20	85	Good/Worth It
<b>Total Score</b>		35	43	81	Good/Worth It

2. PRODUCT TRIALS

a. Small-Scale Trials

1) Conditions of Test Subjects

Small group trials to 5 Real Madrid UNY SSO goalkeepers aged 10-15 years and 5 Real Madrid SSO coaches on the integrated field of the Faculty of Sports Sciences, Yogyakarta State University. The first stage carried out before filling out the questionnaire is to explain the purpose of this study, and explain the material related to the research conducted. Conditions when filling out questionnaires students and trainers pay attention to the explanation of the procedures for questionnaire siding, trainers and students fill out carefully.

2) Results of small-scale trial questionnaires

The results of the trainer and student questionnaire test regarding learning media basic goalkeeper technique guidelines aged 10-15 years based on android. The percentage obtained from the small group assessment of this feasibility aspect is 87%, the linguistic aspect is 81%, the display is 85%. and the total number is 85% categorized as good/decent.

Table 4. Small-scale trial result data

No.	Assessed aspects	Scores obtained	Max Score	Percentage	Category
1.	Content Eligibility	174	200	87	Good/Worth It
2.	Linguistic Aspects	65	80	80	Good/Worth It
3.	Display Aspect	272	320	85	Good/Worth It
<b>Total Score</b>		511	600	85	Good/Worth It

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### b. Large-Scale Trials

#### 1) Condition Subjects of large-scale trials

Large group trials at SSB Gelora Muda, SSB Baturetno and SSB 89 Selindung to 10 goalkeepers aged 10-15 years and 10 coaches. The first stage carried out before filling out the questionnaire was to explain the purpose of this study, and explain the material related to the research conducted. Conditions when filling out questionnaires students and trainers pay attention to the explanation of the procedures for questionnaire siding, trainers and students fill out carefully.

#### 2) Results of large-scale trial questionnaires.

The results of the trainer and student questionnaire test regarding learning media basic goalkeeper technique guidelines aged 10-15 years based on android. The percentage obtained from the small group assessment of this feasibility aspect is 87%, the linguistic aspect is 80%, the display is 88%. and the total number is 88% categorized as good/decent.

**Table 5. Small-scale trial result data**

No.	Assessed aspects	Scores obtained	Max Score	Percentage	Category
1.	Content Eligibility	350	400	87	Good/Worth It
2.	Linguistic Aspects	141	160	88	Good/Worth It
3.	Display Aspect	565	640	88	Good/Worth It
<b>Total Score</b>		1056	1200	88	Good/Worth It

### 3. DATA ANALYSIS RESULTS

Based on the results of the study, data were obtained that produced several things as follows.

- Based on the notes of material experts, to improve grammar and writing and improve each technique to make sub-techniques.
- Based on the notes of media experts, it is advisable to add examples of goalkeeper saves when playing
- Small-scale trials were conducted for 5 trainers and 5 students
- After that, it continued with large-scale trials to 10 trainers and 10 students.
- Based on the results of small-scale and large-scale trials, good / decent results were obtained. The results obtained are then integrated according to predetermined categories, The categories used in this study are divided into several parts, namely percentages.

### IV. DISCUSSIONS

At the beginning of the development of learning media, the basic techniques of goalkeepers based on android were designed and produced into an initial product in the form of an application as a learning medium for students aged 10-15 years. The media development process goes through research and development procedures such as preliminary studies to the final product. After the initial product is made, it needs evaluation from validation and trial experts. The evaluation stage is carried out on material experts and media experts. The research phase was carried out with small-scale trials, namely on 5 coaches and 5 goalkeepers aged 10-15 years at SSB RMF UNY and large-scale on 10 coaches and 10 goalkeepers at SSB, Baturetno, SSB 89 Selindung and SSB Gelora Muda.

After conducting trials (small scale and large scale) can be obtained advantages and disadvantages of basic technical guidelines for goalkeepers aged 10-15 years based on Android. Here are the advantages and disadvantages of the application:

#### 1. Pros of the Application

- This application can be used by students as a learning medium, with an attractive appearance that makes the material easier to understand and can be used as a coach reference to understand the basic techniques of goalkeepers.
- Increase knowledge of basic goalkeeper techniques.
- Attract students to learn basic goalkeeping techniques using this app.
- The application can be accessed online

#### 2. Cons of the App

- Application installation via bluetooth and downloaded via link ( can not be downloaded on the play store) due to the author's limitations.
- In-app videos are shortened so that the size of the application is not too large.

Media tagging basic technical guidelines for goalkeepers aged 10-15 years in the "Eligible" criteria. These results are evidenced by the results of assessments from material and media experts as well as the results of small-scale and large-scale trials.



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Students and coaches are very happy with this application because there is no application that presents to learn goalkeeper and gain knowledge about goalkeeper. From the results of trials on the application media, basic technical guidelines for goalkeepers aged 10-15 years based on Android can be concluded as follows:

- a. Students are very interested in learning basic goalkeeper techniques by using the app, observing images as well as videos and quizzes within the app.
- b. According to the coach, this application is very appropriate to make, so it makes it easier for students to understand material related to basic goalkeeper techniques.
- c. Student dependence on smartphones is very high. With this application, it is expected that students use their smartphones as much as possible so that they are useful for students.
- d. The use of application media basic guidelines for goalkeepers aged 10-15 years based on Android still has obstacles, the installation of the application cannot be downloaded on the play store due to the limitations of the author. In the future, the learning media guidelines for basic techniques for guarding gawang aged 10-15 years are expected to be perfected

### V. CONCLUSION

Based on the results of the development of the basic goalkeeper technical guidelines application for goalkeepers aged 10-15 years based on android, there is a conclusion that from the entire media component of the application basic guidelines for goalkeepers aged 10-15 years based on android-based assessments from material experts, media experts and respondents, it can be concluded that the application is categorized as feasible, which is reviewed from the feasibility of content, language and appearance. The assessment results from material experts get a percentage of 81% (feasible category). Meanwhile, from the assessment of media experts, the percentage is 85% (feasible category). In small-scale trials it gets a percentage of 85% (feasible category), and in large-scale trials it gets a percentage of 88% (feasible category).

### REFERENCES

- 1) I. Chistiyah and P. Priyanto, "Development of Shooting Training Aids with My Basketball Coach Application Based on Android," *J. Sport Coach. Phys. Educ.*, vol. 6, no. 1, pp. 11–19, 2021, doi: 10.15294/jscpe.v6i1.45534.
- 2) M. Suhairi and Z. Arifin, "Development of reaction-based volleyball smash drill tool using android," *Multilater. J. Pendidik. Jasm. dan Olahraga*, vol. 21, no. 1, p. 71, 2022, doi: 10.20527/multilateral.v21i1.12418.
- 3) S. K. Utami and D. Novaliendry, "Development of basic Android-based computer and network interactive modules," *Voteteknika (Vocational Tek. Elektron. dan Inform.)*, vol. 7, no. 4, p. 244, 2020, doi: 10.24036/voteteknika.v7i4.106720.
- 4) R. Firlando, A. Frima, and L. Sunardi, "Android-Based Basic Football Technique Learning Application," *J. Teknol. Inf. Mura*, vol. 12, no. 02, pp. 166–172, 2020, doi: 10.32767/jti.v12i02.1097.
- 5) A. D. N. Solecha and A. W. Kurniawan, "Development of Jujitsu Newaza Learning Media Based on Articulate Storyline Application," *Sport Sci. Heal.*, vol. 3, no. 10, pp. 790–799, 2021, doi: 10.17977/um062v3i102021p790-799.
- 6) F. T. Widyowati, I. Rahmawati, and W. Priyanto, "Development of Application-Based Spelling Reading Learning Media for Grade 1 Elementary Schoolr," *Int. J. Community Serv. Learn.*, vol. 4, no. 4, pp. 332–337, 2020, doi: 10.23887/ijcsl.v4i4.29714.
- 7) M. Roziandy and S. Budiwanto, "Development of Futsal Passing Training Model Based on Android Application," *Indones. Perform. J.*, vol. 2, no. 1, pp. 8–12, 2018.
- 8) F. F. Dewi and S. L. Handayani, "Development of Learning Media En-Alter Sources Animated Video Based on Powtoon Application Alternative Energy Source Material for Elementary School," *J. Basicedu*, vol. 5, no. 4, pp. 2530–2540, 2021, [Online]. Available: <https://jbasic.org/index.php/basicedu/article/view/1229>
- 9) M. A. Irfani and A. W. Kurniawan, "Development of Football Game Learning Media Based on Articulate Storyline Application," *Sport Sci. Heal.*, vol. 4, no. 3, pp. 207–218, 2022, doi: 10.17977/um062v4i32022p207-218.
- 10) B. C. Armanda, S. Adi, and P. Widiawati, "Development of Training Model for Basic Techniques of Lob Punch and Badminton Smash Age 8-12 Years at PB IMARA Kediri City Based on Android," *Sport Sci. Heal.*, vol. 3, no. 10, pp. 784–789, 2021, doi: 10.17977/um062v3i102021p784-789.
- 11) T. Hidayat, "Development of interactive learning media on badminton techniques based on the Macromedia Flash application," *JUPE J. Pendidik. Mandala*, vol. 7, no. 3, pp. 619–624, 2022, [Online]. Available: <https://ejournal.mandalanursa.org/index.php/JUPE/article/view/3859/2868>
- 12) M. Alfin Apriliyanto *et al.*, "Development of Learning Media Basic Football Techniques Based on Android Keywords: Android Multimedia Basic Techniques of Football," *J. Pendidik. Dasar dan Menengah*, no. 1, pp. 34–44, 2021, [Online]. Available: <https://mahardhika.or.id/jurnal/index.php/jpdm>

## Application Development Basic Technical Guidelines for Football Goalkeepers U 10-15 Years Based on Android

- 13) S. Sintaro, A. Surahman, and N. Khairandi, "Basic Futsal Technique Learning Application Using Android-Based Augmented Reality," *TELEFORTECH J. Telemat. Inf. Technol.*, vol. 1, no. 1, pp. 22–31, 2020, doi: 10.33365/tft.v1i1.860.
- 14) A. F. Ababil, S. Adi, and N. R. Fadhli, "Pengembangan media latihan teknik dasar bulutangkis berbasis aplikasi android untuk atlet pemula," *Indones. Perform. J.*, vol. 3, no. 2, pp. 93–100, 2019, [Online]. Available: <http://journal2.um.ac.id/index.php/jko/article/view/12213/5754>
- 15) Y. P. Wintoro, L. T. H. Wiguno, A. W. Kurniawan, and M. Mu'arifin, "Pengembangan Perangkat Pembelajaran Gerak Dasar Lempar Berbasis Aplikasi Articulate Storyline," *Sport Sci. Heal.*, vol. 3, no. 7, pp. 543–555, 2021, doi: 10.17977/um062v3i72021p543-555.
- 16) A. Najib and N. Yuniarti, "Pengembangan Media Pembelajaran Board Game Berbasis Augmented Reality Pada Mata Pelajaran the Development of Learning Media on Augmented Reality Board," *Pendidik. Tek. Mekatronika*, vol. 8 No. 1, no. 3, pp. 9–19, 2018.
- 17) R. Navi, "Media PembelajaranPJOK Materi Teknik Dasar Sepak Bola BerbasisAplikasiArticulate Storyline," *SPJ Sport Pedagog. J.*, vol. 11, no. 2, pp. 49–57, 2022.
- 18) S. N. dan Septri, "Pengembangan Model Pembelajaran Teknik Dasar Pencak Silat Berbasis Multimedia Di Fakultas Ilmu Keolahragaan Universitas Negeri Padang," *J. Stamina*, vol. 1, no. 1, pp. 346–358, 2018.
- 19) N. Huda, "Pengembangan Media Pembelajaran Teknik Dasar Bola Basket Berbasis Android 'Go-Basketball,'" *Semin. Nas. Keindonesiaan*, no. November, pp. 1457–1463, 2022.



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## Protection of Children'S Rights in Criminal Juvenile Justice System: Comparative Study Between Indonesia and Madagascar



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**ABSTRACT:** As Ratifying States of the Convention on the Rights of Child, Indonesia, and Madagascar must protect children's rights in the juvenile criminal justice system. This comparative study aims to analyze the similarities and differences between Law No. 11 of 2012 (Indonesia) and Law No. 2016-018 (Madagascar) as well as establish mutual improvements in both countries' systems. The methods of the research: the type of research is legal doctrinal; the approach used is a statutory approach complemented by a comparative approach; the legal materials used are primary and secondary legal materials; and the method of analysis is a qualitative juridical analysis. Results reveal that both countries have made efforts to prioritize the well-being and rights of children in conflict with the law, incorporating principles such as the best interests of the child, diversion programs, and educational opportunities. However, variations exist in areas such as the age of criminal responsibility, the scope of protection, and diversion systems.

**KEYWORDS:** Children's Rights, Indonesia, Juvenile Justice, Madagascar, Convention on Rights of Child

### I. INTRODUCTION

The establishment and recognition of children's special protection within the juvenile criminal justice system have evolved, reflecting changing societal attitudes and a deeper understanding of child development and justice. Historically, children were often treated as adults in the criminal justice system, lacking appropriate consideration for their unique vulnerabilities and potential for rehabilitation. When it comes to the juvenile justice system, there is a tension between respecting the child's liberty and taking into consideration their greater vulnerability once they are within the system (Hollingsworth, 2007). It is reasonable to state that, of all the components of juvenile justice, the denial of liberty receives the greatest attention (Doek, 2016). However, significant milestones have paved the way for the establishment of a separate system that prioritizes the well-being and development of juvenile offenders.

One crucial development in the recognition of children's special protection in the juvenile justice system occurred with the establishment of the first juvenile court in Cook County, Illinois, in 1899. The Cook County Juvenile Court introduced a revolutionary approach by diverting children away from the adult criminal justice system and focusing on rehabilitation rather than punishment. It recognized that children should be treated differently due to their distinctive needs and capacities, aiming to address the root causes of delinquency through individualized services and to improve the quality of juvenile justice around the world (Winterdyk, 2002).

International standards for the treatment of juvenile offenders have also played a significant role in advancing children's special protection within the juvenile justice system. The United Nations Standard Minimum Rules for the Administration of Juvenile Justice, commonly known as the "Beijing Rules," were adopted by the UN General Assembly in 1985. These rules guided various aspects of juvenile justice, including diversion, non-institutional measures, and fair treatment, emphasizing the need for individualized responses to children in conflict with the law. As an example, the Beijing Rules have influenced the growth of juvenile justice in Europe (Dünkel, 2016).

Furthermore, the United Nations Convention on the Rights of the Child (hereinafter referred as "UNCRC"), adopted in 1989, has been instrumental in shaping the recognition and protection of children's rights within the juvenile justice system. Indeed, The UNCRC has a strong connection to juvenile justice (Goldson, 2018). The UNCRC underscores the importance of child-friendly justice, fair treatment, and the best interests of the child. It has influenced legal frameworks and practices in numerous countries, fostering the establishment of specialized juvenile justice systems that prioritize the rehabilitation and reintegration of children

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in conflict with the law. The example of the Indian Juvenile Justice statute conforming to the 1989 UNCRC standards is relevant (Saibaba 2012).

The development of children's special protection within the juvenile criminal justice system extends to various countries, including Indonesia and Madagascar. These nations have taken steps to address the unique needs and rights of children in conflict with the law, adapting international standards to their respective contexts.

In Indonesia, the recognition of children's special protection in the juvenile justice system has been influenced by both national regulations and international conventions. The Law No. 11 of 2012 concerning the Juvenile Criminal Justice System (hereinafter referred as "Law No. 11 of 2012") emphasizes the importance of diversion, restorative justice, and the best interests of the child in dealing with juvenile offenders (Arliman, 2017). Furthermore, Indonesia ratified the UNCRC in 1990, reinforcing its commitment to safeguarding children's rights within the justice system. Indeed, the examination of Indonesia's juvenile justice system's history is inseparable from its early ratification of the UNCRC (Davies & Robson, 2016). By participating in international conferences on children hosted by the United Nations (UN), such as the United Nations Standard Minimum Rules for the Administration of Juvenile Justice, the Indonesian government demonstrates its commitment to and particular attention to the protection of children (Daud & Cahyaningtyas, 2020). These legal frameworks have contributed to the establishment of specialized courts and diversion programs that focus on the rehabilitation and reintegration of young offenders.

Similarly, Madagascar has made efforts to promote children's special protection within its juvenile criminal justice system. Law No. 2016-018 concerning Measures and Procedures Applicable to Children in Conflict with The Law (hereinafter referred as "Law No. 2016-018") provides a framework that aligns with international standards and prioritizes the rights and well-being of children in conflict with the law (RASOLOARIVONY, 2015). This law and the measures for its application reflect the country's commitment to international standards in this area and to the children's rights instruments ratified by Madagascar such as UNCRC (RALAIVITA, 2019). The country has implemented measures such as diversion programs, alternative sentencing, and the establishment of specialized juvenile courts to ensure the effective treatment and reintegration of juvenile offenders.

A comparative study between Madagascar and Indonesia on the protection of children within the juvenile criminal justice system is of great importance. It enables the identification of shared challenges and gaps in each country's approach, facilitates the exchange of knowledge and best practices, promotes cross-cultural learning, and provides knowledge of the different rules and institutions that are compared (Sacco, 1991). By examining similarities and differences, policymakers can address common issues and implement effective strategies to safeguard children's rights. Furthermore, such a study contributes to the advancement of international standards and practices, informing global discussions and policy recommendations for the protection of children in conflict with the law. Indeed, this comparative analysis offers valuable insights for enhancing the juvenile justice systems of Madagascar and Indonesia, promoting the well-being and rehabilitation of young offenders, and supporting the development of more effective strategies for protecting children's rights.

## II. RESEARCH PROBLEMS

This article discusses two issues, namely:

1. What are the differences and similarities between Law No. 11 of 2012 and Law No. 2016-018 in the implementation of special protection of children?
2. How can the experiences and lessons learned from Madagascar and Indonesia contribute to the advancement of the protection of children's rights within the juvenile criminal justice system of both countries?

## III. RESEARCH METHODS

This study uses legal doctrinal research, which involves a systematic exposition of analysis, and critical evaluation of regulations, principles, concepts, or doctrines, and their interrelationships (Rezah, 2022). The researchers use a statutory approach (Johnny, 2008) and a comparative approach (Peter, 2009) to analyze and obtain information about the issues discussed. Moreover, the legal materials used in this research are in the form of primary legal material, namely Law No. 11 of 2012 and Law No. 2016-018, and secondary legal material (scientific journals, books, and other scientific works) (Soerjono, 2010). The data will be analyzed by using qualitative juridical analysis.

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## IV. DISCUSSION

### Theoretical Background of the Law No. 11 of 2012 and Law No. 2016-018

#### 1. Law No. 11 of 2012 concerning the Juvenile Criminal Justice System in Indonesia

Law No. 11 of 2012 as a substitution of Law No. 03 of 1997 concerning Juvenile Court, is a significant regulation in Indonesia that governs the treatment, rights, and procedures related to children in conflict with the law. This substitution is due to the fact that the Juvenile Court Law is no longer in accordance with the legal needs of society and has not comprehensively provided special protection for children who conflict with the law (Ariani, 2014). Thus, Law No. 11 of 2012 was enacted to address the special protection of children based on their unique needs and vulnerabilities within the criminal justice system and to ensure their protection, rehabilitation, and reintegration into society. According to Arif Gosita, child protection is an effort that supports the implementation of rights and obligations. A child who obtains and maintains the right to grow and develop in life in a balanced and positive manner means that he is treated fairly and is protected from harmful threats. Efforts to protect children can be a legal action that has legal consequences, thereby preventing children from arbitrary parental actions (Faisal, 2005).

The theoretical background of Law No. 11 of 2012 is rooted in international legal frameworks and principles, particularly those outlined in the UNCRC, to which Indonesia is a signatory. The UNCRC recognizes that children have distinct rights and requires states to establish appropriate legal measures to protect these rights. It emphasizes the importance of treating children in conflict with the law differently from adults and providing them with specialized measures that focus on their rehabilitation and best interests (Davies, 2016).

Law No. 11 of 2012 reflects the principles of restorative justice, diversion, and the best interests of the child. Restorative justice is a fundamental principle that seeks to repair the harm caused by the offense and to restore the relationship between the offender, the victim, and the community. It promotes the idea that the primary focus should be on rehabilitating the child and reintegrating them into society, rather than emphasizing punitive measures (Yunus, 2013).

The law also emphasizes the principle of diversion, which involves diverting children away from formal court proceedings and exploring alternative measures such as mediation, reconciliation, and community-based programs. Diversion aims to address the underlying causes of the offense and to provide children with an opportunity to learn from their mistakes and reintegrate into society without the stigma and long-term consequences of a criminal record (Prasetyo, 2015).

Furthermore, Law No. 11 of 2012 places a strong emphasis on the best interests of the child. It recognizes that decisions and interventions related to children in conflict with the law should consider their age, maturity, individual circumstances, and developmental needs. This principle ensures that their rights and well-being are safeguarded throughout the entire juvenile justice process, promoting their rehabilitation and reintegration into society as productive and law-abiding citizens (Riza, 2021).

The enactment of Law No. 11 of 2012 also acknowledges a change to the system of punishing children. One of the changes is the Institution for Specialized Development for Children (LPKA). In accordance with the implementation of this Law for at least 3 (three) years, because a child who is convicted or deemed to have committed a crime or criminal act, must still be entitled to his rights while in the Special Child Development Institution (LPKA) (Eleanora, 2018).

The theoretical background of Law No. 11 of 2012 reflects the international legal principles of the UNCRC and the recognition that children in conflict with the law require specialized treatment and protection. By incorporating the principles of restorative justice, diversion, and the best interests of the child, the law aims to provide a comprehensive and rights-based framework for addressing juvenile delinquency in Indonesia. It seeks to ensure the protection, rehabilitation, and reintegration of children in conflict with the law, promoting their well-being and prospects within society.

#### 2. Law No. 2016-018 concerning Measures and Procedures Applicable to Children in Conflict with The Law

In the beginning, the provisions about children in conflict with the law were regulated in Ordinance No. 62-038 concerning the Protection of Children. However, the Ordinance was not sufficient due to the fact that it only regulated children in danger in its article 3 (RASOLOARIVONY, 2015). Thus, the Law No. 2016-018 was enacted as a significant legislation that governs the treatment, rights, and procedures related to children in conflict with the law. The theoretical background of this law is rooted in international legal frameworks and principles, as well as the specific needs and challenges faced by children in the criminal justice system in Madagascar.

What characterizes the child is his youth and his vulnerability. Indeed, the child is a being in full growth, an adult in the making, who does not have the means to protect himself alone. Also, the child must be the object of a particular interest and specific protection. It is with this in mind that texts proclaiming the protection of children and their rights have been adopted. In 1991, Madagascar ratified the UNCRC (CRIN, 2009). Law No. 2016-018 aligns with UNCRC as seen in its preamble. It emphasizes

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the protection and well-being of children in conflict with the law. Madagascar, as a signatory to the UNCRC, is committed to upholding the rights of children and ensuring their specialized treatment within the criminal justice system.

It is important to note that in Madagascar's Juvenile Criminal Justice System, there are two terms to identify the juvenile mentioned in Law no. 2016-018, distinctively "*enfant*" and "*mineur*" or "child" and "minor", children are necessarily minors but minors are not necessarily children (ANDRIANAIVONTSEHENO, 2013). Moreover, another distinction regarding the frequency of juvenile criminal acts exists in Madagascar, namely: primo-delinquents (first time delict), intermediary delinquents (several delicts in a limited time), and real juvenile delinquents (permanent and recidivist delict) (MÂLE, 1984).

Law No. 2016-018 recognizes the importance of rehabilitating children in conflict with the law and reintegrating them into society. It acknowledges the need to provide appropriate measures and procedures that focus on their development, well-being, and prospects. By adopting a child-centered approach, the law emphasizes the individual circumstances, rights, and best interests of the child throughout the entire juvenile justice process.

Furthermore, Law No. 2016-018 underscores the significance of community involvement in the rehabilitation and reintegration of children in conflict with the law. It recognizes the role of community organizations, social workers, and other relevant stakeholders in providing support, guidance, and resources to promote the successful reintegration of children into society. This community-based approach aims to create a nurturing and supportive environment that facilitates the positive development of children and prevents their further involvement in criminal activities.

The Law No. 2016-018 also emphasizes the importance of education and vocational training as part of the rehabilitation process for children in conflict with the law. It recognizes the need to provide educational opportunities and skills development programs that empower children to build a better future and contribute positively to society. Additionally, Law No. 2016-018 recognizes the significance of diversion programs as an alternative to formal prosecution and punishment. It encourages the use of restorative justice practices, mediation, and community-based interventions to address the underlying causes of the offense and promote the rehabilitation of children. By diverting children away from the formal court system, the law aims to provide them with opportunities for personal growth, accountability, and the restoration of harm caused by their actions (RALAITSIROFO, 2017).

The theoretical background of Law No. 2016-018 underscores Madagascar's commitment to upholding the rights and well-being of children in conflict with the law. By including child-centered strategies, community participation, education, vocational training, and diversion programs, the law aims to establish a comprehensive framework for addressing juvenile delinquency in Madagascar. Its ultimate goal is to ensure the protection, rehabilitation, and successful reintegration of children, while promoting their rights and enabling them to become responsible and productive members of society.

### Similarities and Differences Between Law No. 11 of 2012 and Law No. 2016-018 in the Implementation of the Protection of Children in the Juvenile Criminal Justice System

#### 1. Definitions Of Children In Conflict With The Law

Article 1(3) of Law No. 11 of 2012 states:

"Children in conflict with the law, hereinafter referred to as children, are children who are 12 (twelve) years old but not yet 18 (eighteen) years old who are suspected of committing a crime."

Law No. 11 of 2012 in Indonesia defines "children in conflict with the law" as individuals aged 12 to 18 years who commit acts defined as criminal offenses under Indonesian law. This age range sets the parameters for determining the application of the juvenile justice system and differentiates children in conflict with the law from adults. The law recognizes that children within this age range should be treated differently from adults in the criminal justice system due to their unique vulnerabilities and developmental needs.

On the other hand, Law No. 2016-018 in its

Article 3 "A child means any human being under the age of 18" *juncto*

Article 5 "A child is in conflict with the law when he is liable to prosecution for any breach of criminal law" *juncto*

Article 8 "Age of criminal responsibility is set at 13 years",

defines "children in conflict with the law" as individuals aged 13 to 18 years who have allegedly committed an offense punishable by the law. Juvenile delinquency mainly concerns adolescents, even if in a residual way children under the age of 13 can take this path. When the judge finds himself in front of a child, he must verify his age. Minors aged 13 are criminally irresponsible, while those aged 13 to 18 are subject to a special jurisdiction: the juvenile court (RALAITSIROFO, 2017).

The disparity in the defined age ranges reflects different cultural, societal, and legal perspectives on the age of criminal responsibility in Indonesia and Madagascar. It highlights variations in the understanding of when children can be held accountable for their actions and the age at which they should be subject to the juvenile justice system. It is important to note that the age

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ranges specified in the laws do not represent a universally agreed-upon standard (Reichel, 2016). Different countries and legal systems may have varying age thresholds for determining the age of criminal responsibility. By establishing these definitions, both laws aim to ensure that children in conflict with the law receive appropriate protection, care, and rehabilitation within the juvenile justice system. They recognize the need for tailored approaches that consider the age, maturity, and individual circumstances of the child (Cipriani, 2016).

### **2. Principles of Juvenile Criminal Justice System**

Article 2 of Law No. 11 of 2012:

"The Juvenile Criminal Justice System is implemented based on the principles of a. protection; b. justice; c. non-discrimination; d. the best interests of the child; e. respect for children's opinions; f. survival and development of children g. fostering and guiding children; h. proportional; i. deprivation of liberty and punishment as a last resort; and j. avoidance of retaliation".

Article 2 of Law No. 2016-018:

"Fundamental principles, including the best interests of the child, non-discrimination, the right to life, survival and development, the right to expression, and the exceptional nature of detention, must be respected at all stages of the procedure.

The measures taken with regard to a child in conflict with the law must be proportionate to the circumstances, the seriousness of the offense, and the needs of the child, in particular educational and social.

In the event of conviction, the principle of the personalization of the sentence is respected".

Both Indonesia and Madagascar emphasize the principle of considering the best interests of the child throughout the juvenile criminal justice process. This principle ensures that decisions and actions taken regarding the child's case prioritize their overall well-being and development. Additionally, both countries recognize the principle of non-discrimination, promoting equal treatment and protection for all children involved in the criminal justice system, regardless of factors such as race, religion, ethnicity, or gender. They also acknowledge the importance of ensuring the survival and development of children, emphasizing the need to provide appropriate support, opportunities, and interventions that contribute to the child's growth and positive outcomes, regardless of their involvement in the criminal justice system.

Another shared principle is that of proportionality. Both countries emphasize the importance of determining measures that are proportionate to the circumstances, the seriousness of the offense, and the specific needs of the child. This principle ensures that interventions or sanctions are appropriate and fair in response to a child's offense.

While Indonesia explicitly includes the principle of respecting children's opinions in its juvenile criminal justice system, Madagascar's law does not mention it. This suggests that Indonesia places importance on considering the views and perspectives of the child during decision-making processes, while Madagascar's approach might be less explicit in this regard. Furthermore, Indonesia includes the principle of fostering and guiding children as part of its juvenile criminal justice system. This principle implies that efforts should be made to support and guide children towards positive behavior and rehabilitation. On the other hand, Madagascar's law does not specifically mention this principle, indicating a potential difference in their approach to supporting and guiding children in the criminal justice system.

In terms of the use of deprivation of liberty and punishment, Indonesia's law highlights the principle that these measures should be used as a last resort in dealing with juvenile offenders. This principle emphasizes the importance of exploring alternative measures before resorting to incarceration or punitive actions. In contrast, Madagascar's law does not explicitly mention this principle. Similarly, Indonesia includes the principle of avoiding retaliation within its juvenile criminal justice system, promoting a focus on rehabilitation and restorative justice rather than punitive actions driven by revenge. Madagascar's law does not explicitly mention this principle, suggesting a potential difference in their approach to addressing the emotional and psychological aspects of justice for juvenile offenders.

Lastly, Madagascar's law includes the principle of personalization of the sentence, highlighting the importance of tailoring the sentencing to the individual circumstances, needs, and characteristics of the child. This principle emphasizes the significance of individualized approaches to rehabilitation and reintegration. In contrast, Indonesia's law does not explicitly mention this principle, suggesting a potential difference in their approach to addressing the unique needs and circumstances of each juvenile offender.

### **3. Diversion System Objectives**

The diversion process in Indonesia is regulated under Article 6 to Article 15 of Law No. 11 of 2012. While the diversion process in Madagascar is regulated under Article 12 to Article 28 of Law No. 2016-018. It is in the name of the extra-judiciary process. However, for comparative purposes, we will use Article 6 of Law No. 11 of 2012 and Article 14 of Law No. 2016-018.

Article 6 of Law No. 11 of 2012:

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“Diversion aims: a. achieve peace between the victim and the child; b. resolve cases of children outside the judicial process; c. prevent children from deprivation of independence; d. encourage people to participate, and e. instill a sense of responsibility to children.”

Article 14 of Law No. 2016-018:

“The objectives of conciliation are: to suspend the effects of criminal proceedings; to ensure compensation for the damage caused to the victim; to put an end to the disturbance resulting from the offense; to contribute to the social reintegration of the child, author of the offense by emphasizing restorative and non-punitive justice.”

Both laws recognize the importance of diversion as an alternative to formal court proceedings and incarceration for children in conflict with the law. They aim to provide rehabilitative measures that address the underlying causes of criminal behavior and promote the successful reintegration of children into society. In Indonesia, Law No. 11 of 2012 emphasizes the use of diversion programs as an integral part of the juvenile justice system. It encourages the application of diversion measures at various stages of the criminal justice process, including pre-trial, trial, and post-trial phases. Similarly, Law No. 2016-018 in Madagascar recognizes the significance of diversion programs for children in conflict with the law. It promotes the use of diversion measures in the form of conciliation as an alternative to formal prosecution and punishment.

However, there are some differences in the diversion systems of the two laws. In Indonesia, Law No. 11 of 2012 explicitly provides for various diversion options, such as mediation, reconciliation, and community-based programs. It encourages the involvement of multiple stakeholders, including community members and social workers, in the diversion process. In contrast, Law No. 2016-018 in Madagascar does not specifically outline the types of diversion measures available. It only provides reconciliation as a means of diversion process. Additionally, Law No. 11 of 2012 in Indonesia explicitly recognizes diversion as an essential part of the juvenile justice system. It emphasizes the importance of diverting children away from formal court proceedings and exploring alternative measures, such as mediation, reconciliation, and community-based programs. The law underscores the need to address the underlying causes of the offense and focus on the child's rehabilitation and reintegration. Law No. 2016-018 in Madagascar acknowledges the significance of diversion as an alternative to formal prosecution and punishment. However, it may provide fewer specific details or guidance on the operational aspects of diversion programs. The emphasis in the law appears to be more on community-based rehabilitation programs and the involvement of community organizations in the reintegration of children.

### **4. The Rights Of Child In Conflict With The Law**

Article 3 of Law No. 11 of 2012:

“Every child in the criminal justice process has the right: a. treated humanely by taking into account the needs according to their age; b. separated from adults; c. obtain legal assistance and other assistance effectively; d. carry out recreational activities; e. free from torture, punishment, or other cruel, inhumane, and degrading treatment and dignity; f. not sentenced to death or life imprisonment; g. not be arrested, detained or imprisoned, except as a last resort and for the shortest time; h. obtain justice before a Juvenile court that is objective, impartial, and in a session closed to the public; i. identity is not published; j. obtain the assistance of parents/guardians and people trusted by the child; k. obtain social advocacy; l. acquire a private life; m. gain accessibility, especially for children with disabilities; n. get education; o. obtain health services; and p. obtain other rights in accordance with the provisions of the legislation.)”

Article 6 of Law No. 2016-018:

“A child in conflict with the law benefits from fair and humane treatment and a fair trial. All the rights inherent in his person must be respected at all stages of the procedure, in particular: consideration of his best interests in all decisions that concern him; the right to be protected against all forms of discrimination or punishment based on the race, color, sex, language, religion, political or other opinion of the child or of his parents or legal representatives, l national, ethnic or social origin, disability, financial situation, medical situation, birth or any other situation; the right of every child to participate in decisions affecting him and in particular the right to be heard in any judicial or administrative proceedings; the right of a child capable of discernment to be heard directly or by a legal representative and to express his opinions freely on any question which interests him, opinions duly taken into consideration having regard to his age and degree of maturity; the right to life, survival and the harmonious development of one's personality; the right to protection against torture and cruel, inhuman or degrading treatment in accordance with the provisions of Law No. 2008-008 of June 25, 2008 on the fight against torture and cruel, inhuman or degrading treatment; the right to be heard with all useful non-coercive measures to facilitate and shorten his testimony; the right not to be unlawfully or arbitrarily deprived of liberty.”

Both laws recognize the fundamental rights of the child, aligning with international standards such as the UNCRC. They emphasize the child's right to life, survival, development, and protection from all forms of violence, abuse, and exploitation. These



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rights underscore the commitment of both countries to safeguarding the well-being and dignity of children within the juvenile criminal justice system. Moreover, both laws emphasize the child's right to legal representation. They recognize that children in conflict with the law should have access to legal aid and assistance to ensure their rights are protected and upheld during legal proceedings. This ensures that children can effectively participate in their defense and have their voices heard. Furthermore, both laws acknowledge the child's right to privacy and confidentiality. They emphasize the importance of preserving the child's identity and ensuring that their personal information is handled confidentially and sensitively. This right aims to protect children from stigmatization, discrimination, and potential harm that may arise from the disclosure of their involvement in the criminal justice system.

In terms of differences, Law No. 11 of 2012 in Indonesia explicitly recognizes the child's right to education and vocational training. It emphasizes the importance of providing educational opportunities to children in conflict with the law as part of their rehabilitation and reintegration process. This provision reflects the recognition that education plays a crucial role in the child's development, empowerment, and prospects. On the other hand, Law No. 2016-018 in Madagascar does not explicitly mention the right to education within the context of the juvenile criminal justice system. While this does not necessarily mean that the right to education is disregarded, it highlights a difference in the level of explicit recognition and emphasis placed on this right within the specific law.

### **Mutual Contribution Between the Law No. 11 of 2012 and Law No. 2016-018 in Implementing the Protection of Children's right in the Juvenile Criminal Justice System**

#### **1. Madagascar to Indonesia**

Madagascar's juvenile criminal justice system offers valuable insights and improvements that can contribute to enhancing Indonesia's system based on the identified differences between the two. By analyzing these differences, we can identify areas where Madagascar's system can enhance Indonesia's approach to better protect and support children in conflict with the law.

One significant difference is the age of criminal responsibility. Madagascar sets the age of criminal responsibility at 13, while Indonesia's Law No. 11 of 2012 sets it at 12. Madagascar's lower age of criminal responsibility recognizes the need to provide additional protection and support to younger children, considering their developmental immaturity and vulnerability. Indonesia can learn from this difference by considering the lower age of criminal responsibility to align with international standards and best practices, ensuring that young children are not unnecessarily exposed to the formal criminal justice system.

Furthermore, Madagascar's focus on restorative justice principles can greatly contribute to Indonesia's system. Law No. 2016-018 promotes the repair of harm caused by offenses and the restoration of relationships between offenders, victims, and the community. This approach emphasizes accountability, personal growth, and the reintegration of children into society. Indonesia can benefit from incorporating restorative justice principles into its system, fostering an environment that prioritizes the rehabilitation and reintegration of children in conflict with the law. Indonesia should considerably review its diversion process as under Article 7 paragraph (2) subparagraph an of Law no. 11 of 2012 a child cannot be the subject of a diversionary effort under the terms if the crime committed carries a sentence of at least seven (seven) years in prison. However, the preamble of the CRC states that the basic philosophy of child protection is that "the child needs special protection because of physical and mental inadequacy," so the efforts of non-formal alternative settlement through diversion and restorative justice should be made as much as possible in the children's case and retributive justice retaliation should start to be abandoned and replaced by the alternative punishment (Sinatrio, 2019), instead of basing on proponents of positive law (Amnawary, 2019).

By incorporating these differences and adopting relevant aspects of Madagascar's system, Indonesia can enhance its juvenile criminal justice system. Raising the age of criminal responsibility, promoting community involvement and support, incorporating restorative justice principles, and prioritizing education and vocational training can collectively contribute to a more effective and child-centered approach. These improvements will better protect and support children in conflict with the law, promoting their rehabilitation, reintegration, and overall well-being.

#### **2. Indonesia to Madagascar**

Indonesia's juvenile criminal justice system can provide valuable insights and improvements to Madagascar's system based on the identified differences between the two. By analyzing these differences, we can identify areas where Indonesia's system can enhance Madagascar's approach to better protect and support children in conflict with the law.

One notable difference is the age of criminal responsibility. Indonesia's Law No. 11 of 2012 sets the age of criminal responsibility at 12 years old, while Madagascar's Law No. 2016-018 sets it at 13 years old. Indonesia's higher age of criminal responsibility encourages Madagascar to pertain the lower age of criminal of criminal responsibility while inciting the juvenile to a structured educational measure without laxism.

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Another difference lies in the scope of protection and rights afforded to children. Indonesia's Law No. 11 of 2012 places a strong emphasis on the rights of the child, drawing from international conventions such as the UNCRC. This recognition ensures that children in conflict with the law are treated with dignity, respect, and fairness throughout the justice process, among others detention.

Indeed, the number of children in detention remains high in Madagascar; according to statistics from the Ministry of Justice at the end of December 2019, 1052 children were in prison in Madagascar, including 45 girls. 63% of children in prison in Madagascar, i.e. 664 at the end of December 2019, were in preventive detention, and had not yet been tried (RALAIVITA, 2019). Madagascar must take into consideration a stronger implementation of children's rights in its system by adopting a similar rights-based approach, ensuring comprehensive protection of children's rights in line with international standards. By prioritizing the rights of the child, Madagascar can create a more supportive and child-centered juvenile justice system.

Additionally, Indonesia's emphasis on diversion programs and restorative justice principles can greatly contribute to Madagascar's system. Indonesia recognizes the value of diversion as an alternative to formal court proceedings, providing opportunities for rehabilitation and reintegration. By diverting children away from the criminal justice system and towards community-based interventions, Indonesia aims to address the underlying causes of offenses and promote positive behavioral change. It is important to note that Indonesia uses penal mediation in the juvenile justice system, which must be based on Pancasila (Cahyaningtyas, 2018). Madagascar should take the example from Indonesia by enhancing its system by implementing similar diversion programs that focus on restorative justice and penal mediation, thereby allowing for tailored interventions that prioritize rehabilitation and reintegration over punitive measures.

Furthermore, Indonesia's efforts to provide access to education and vocational training for children in conflict with the law can greatly benefit Madagascar's system. Education and skills development are crucial in supporting the rehabilitation and reintegration of children. Indonesia's implementation of various educational programs and vocational training initiatives within juvenile justice institutions demonstrates a commitment to equipping children with the necessary knowledge and skills for their future. Madagascar can improve its system by prioritizing access to quality education and vocational training programs, empowering children, and increasing their prospects for successful reintegration.

## **V. CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

In conclusion, the comparative analysis of Indonesia's and Madagascar's juvenile criminal justice systems reveals both similarities and differences in their approaches to the protection of children's rights and the implementation of measures aimed at their rehabilitation and reintegration. Both countries have made significant efforts to establish legal frameworks that prioritize the well-being and rights of children in conflict with the law. Indonesia's Law No. 11 of 2012 and Madagascar's Law No. 2016-018 demonstrate a commitment to international standards and conventions, emphasizing the best interests of the child, diversion programs, and the provision of education and vocational training.

Despite these similarities, there are also notable differences between the two systems. These differences include the age of criminal responsibility, the scope of protection and rights afforded to children, the diversion system, the definition of children in conflict with the law, and the theoretical background of the respective laws. From a comparative perspective, both countries can learn from each other's experiences and advancements. Indonesia can benefit from Madagascar's emphasis on community involvement, restorative justice principles, and the higher age of criminal responsibility. On the other hand, Madagascar can draw inspiration from Indonesia's implementation of diversion programs, its strong emphasis on the rights of the child, and the provision of education and vocational training opportunities.

### **Recommendations**

To enhance the implementation of the protection of children's rights in their juvenile criminal justice systems, Indonesia and Madagascar should consider several key recommendations. Firstly, harmonizing the age of criminal responsibility with international standards is essential, ensuring a more appropriate approach to dealing with children in conflict with the law. Moreover, strengthening community involvement and collaboration, as well as promoting restorative justice principles, can create a nurturing and supportive environment for rehabilitation and reintegration. Additionally, expanding diversion programs and prioritizing access to education and vocational training will provide tailored interventions and equip children with essential skills for their future. Lastly, establishing robust monitoring and evaluation mechanisms will ensure the systems remain responsive and effective. By implementing these recommendations, both countries can foster a more comprehensive and child-centered approach to juvenile justice, safeguarding the rights and well-being of children involved in the criminal justice system.

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## REFERENCES

- 1) ANDRIANAIVONTSEHENO R. (2013). La protection des incapables en droit positif malgache, Faculté de droit et des Sciences Politiques de l'Université d'Antananarivo. « Annales Droits Nouvelle série n°2». Edition Tsipika. 19
- 2) Ariani, N. V. (2014). Implementasi Undang-Undang Nomor 11 Tahun 2012 tentang sistem peradilan pidana anak dalam upaya melindungi kepentingan anak. *Jurnal Media Hukum*, 21(1), 16.
- 3) Arliman, L. (2017). Perlindungan Anak Oleh Masyarakat Ditinjau Dari Mazhab Sejarah Di Dalam Penerapan Prinsip The Best Interest Of The Child Pada Kehidupan Anak Di Indonesia. *Era Hukum-Jurnal Ilmiah Ilmu Hukum*, 15(1).
- 4) Cahyaningtyas, I. (2018). Penal Mediation of Treatments for Children in the Juvenile Justice System. *Diponegoro Law Review*, 3(2), 264-276.
- 5) Cipriani, D. (2016). *Children's rights and the minimum age of criminal responsibility: a global perspective*. Routledge.
- 6) Child Rights International Network (CRIN). (2009). *Rapport des droits des enfants à Madagascar depuis 2009*. Retrieved on 22 June 2023 from [https://archive.crin.org/en/docs/Madagascar\\_MCSCRG\\_CRC%20Report.docx](https://archive.crin.org/en/docs/Madagascar_MCSCRG_CRC%20Report.docx).
- 7) Daud, B. S., & Cahyaningtyas, I. (2020). Criminal Justice System Toward Children With Legal Conflict Seen In Justice Restorative Perspective. *Jurnal Hukum Prasada*, 7(1), 14-26.
- 8) Davies, S. G., & Robson, J. (2016). Juvenile (in) justice: Children in conflict with the law in Indonesia. *Asia-Pacific Journal on Human Rights and the Law*, 17(1), 119-147.
- 9) Doek, J. E. (2016). Juvenile justice: International rights and standards. In *Tomorrow's Criminals* (pp. 247-264). Routledge.
- 10) Dünkel, F. (2016). Juvenile justice and human rights: European perspectives. *Women and Children as Victims and Offenders: Background, Prevention, Reintegration: Suggestions for Succeeding Generations (Volume 2)*, 681-719.
- 11) Eleanora, F. N., & Masri, E. (2018). Pembinaan Khusus Anak Menurut Sistem Peradilan Pidana Anak. *Jurnal Kajian Ilmiah Universitas Bhayangkara Jakarta Raya*, 18(3), 215-30.
- 12) Faisal, S. M. (2005). *Hukum Acara Peradilan Anak di Indonesia*. Cetakan I. Bandung, Mandar Maju.
- 13) Goldson, B. (2018). Reading the present and mapping the future (s) of juvenile justice in Europe: complexities and challenges. In *Juvenile Justice in Europe* (pp. 209-253). Routledge.
- 14) Hollingsworth, K. (2007). Responsibility and rights: Children and their parents in the youth justice system. *International Journal of Law, Policy and the Family*, 21(2), 190-219.
- 15) Johnny, I. (2008). *Teori dan Metodologi Penelitian Hukum Normatif*, Cet. Keempat. Jakarta: Bayumedia, p. 310.
- 16) MÂLE P. (1984). *De l'enfant à l'adulte, psychiatrie et psychanalyse*, Payot, Collection science de l'homme, Paris, 429.
- 17) Peter, M. M. (2009). *Penelitian Hukum*, Kencana Prenada Media Group, Jakarta, p. 93.
- 18) Prasetyo, T. (2015). Penerapan Diversi Terhadap Tindak Pidana Anak Dalam Sistem Peradilan Pidana Anak. *Refleksi Hukum: Jurnal Ilmu Hukum*, 9(1), 1-14.
- 19) RALAIVITA, A. M. (2015). Les enfants en détention font face à un risque accru de contracter la COVID-19 et doivent être libérés. *United Nations Madagascar*. Retrieved on 22 June 2023 from <https://madagascar.un.org/fr/41753-les-enfants-en-d%C3%A9tention-font-face-%C3%A0-un-risque-accru-de-contracter-la-covid-19-et-doivent>
- 20) RALAITSIROFO M. S. (2017). *LES PROTECTIONS JUDICIAIRES DES ENFANTS EN CONFLIT AVEC LA LOI DANS L'ADMINISTRATION DE LA JUSTICE* (Master II Thesis, UNIVERSITE D'ANTANANARIVO).
- 21) RASOLOARIVONY, R. N. (2015). *LES DROITS A LA PROTECTION DE L'ENFANT A MADAGASCAR FACE A LA MALTRAITANCE: DE L'ENGAGEMENT A LA REPRESSION* (Master Thesis II, UNIVERSITE D'ANTANANARIVO).
- 22) Reichel, P., & Albanese, J. (2016). Comparing and delivering juvenile justice across the world. *Women and Children as Victims and Offenders: Background, Prevention, Reintegration: Suggestions for Succeeding Generations (Volume 2)*, 783-803.
- 23) Rezah, F. S., & Qamar, N. (2022). *Metode Penelitian Hukum: Doktrinal dan Non-Doktrinal*.
- 24) Saibaba, A. (2012). *Juvenile justice: critically juxtaposing the models in India and Singapore*. Singapore: Asian Law Institute.
- 25) Sacco, R. (1991). Legal formants: a dynamic approach to comparative law (Installment I of II). *The American Journal of Comparative Law*, 39(1), 1-34.
- 26) Sinatrio, W. (2019). The Implementation of Diversion and Restorative Justice in the Juvenile Criminal Justice System in Indonesia. *JILS*, 4, 73.
- 27) Soerjono Soekanto, (2010). *Pengantar Penelitian Hukum*, UI Press, Jakarta, p. 52.
- 28) Winterdyk, J. (Ed.). (2002). *Juvenile justice systems: International perspectives*. Canadian Scholars' Press.

## Protection of Children`S Rights in Criminal Juvenile Justice System: Comparative Study Between Indonesia and Madagascar

- 29) Yunus, Y. (2013). Analisis Konsep Restorative Justice Melalui Sistem Diversi Dalam Sistem Peradilan Pidana Anak Di Indonesia. *Jurnal Rechts Vinding: Media Pembinaan Hukum Nasional*, 2(2), 231-245.



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## **Effective Methods of Preventing the Risk of Juvenile Delinquency: A Case Study in High School Children**



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**ABSTRACT:** The problem of student delinquency has existed for a long time. However, it is currently difficult to overcome due to several factors such as the government, parents, and families. In particular, the contributing factors can include parental marital discord, social skills, and internet use. This study aims to analyze the relationship between parents' marital discord, social skills, internet use, and the occurrence of juvenile delinquency. This was quantitative research with an analytical descriptive design. The population was 508 students in Wonosobo. Furthermore, 84 were selected as the samples using the random sampling proportion technique. In addition, the test used the chi-square test. The results showed that most respondents had no marital discord with their parents (53.6%). Respondents with good social skills and moderate internet use (48.8%). Students committed juvenile delinquency, but not seriously by 65.5%. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. In the multivariate analysis, Juvenile delinquency can be prevented by controlling parental marital discord factors, and social skills and preventing interaction of Internet use without adolescent social skills. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. Social skills are a major factor in juvenile delinquency

**KEYWORDS:** Effective methods, preventing the risk, juvenile Delinquency, parental marital Discord

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### **INTRODUCTION**

In the era of globalization, many things have changed. The adolescent association is a small example of the many consequences of globalization. The association of teenagers has no limits anymore. Many things they do without thinking about the harmful effects on themselves and others. Student delinquency is nothing new, the problem of student delinquency has been around for a long time. The current delinquent behavior of students is difficult to overcome. There are so many cases of delinquency committed by students both in the school environment and outside the school. Juvenile delinquency is often found in skipping school, brawling, fighting, drug abuse, consuming alcohol, sexual harassment, theft, to criminal acts that can take the lives of others. (1)

There are several factors that influence juvenile delinquency. According to Santrock (2007), the factors that influence juvenile delinquency are (1) identity, (2) self-control, (3) age, (4) gender, (5) family process, (6) peer influence, (7) socioeconomic class, (8) quality of the living environment, (9) expectations of education and values in school. (2)

Based on the results of a preliminary study conducted by researchers at SMKN 1 Wonosobo by asking guidance counseling teachers and students, information was obtained that there were students who became pregnant out of wedlock due to promiscuity with their lovers and that every year there were fights in the school environment whether it was women or men, besides that the delinquency that was often done was about disciplinary resistance such as not going to school (truant) to be in class XI. and XII. Researchers also conducted interviews with 10 students and researchers found that 8 of the 10 students violated school rules such as truancy, arriving late, speeding on the road, smoking, drinking alcohol, playing games during school hours, dating in the school environment, and 2 of them admitted to having sex with their girlfriends and tried to use narcotics, namely the type of gorilla that was already in the form of cigarettes because they were influenced by friend others. The student also admitted they did it out of style and bandwagon with his friend. The purpose of the study wants to are interested in understanding the relationship between parental marital disputes, social skills, and internet use with the occurrence of juvenile delinquency in the Wonosobo Regency.

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## METHOD

This type of research is quantitative with an analytical descriptive design. The population is all students of classes XI, and XII with a total of 508 students. The sampling technique uses a random sampling proportion technique of 84 students. Tests used the chi-square test

## RESULT AND DISCUSSION

### Marital disputes of parents, social skills, internet use, and juvenile delinquency.

**Table 1. Marital Parental Disputes, Social Skills, Internet Use, and Juvenile Delinquency.**

Variable	n	%
Marital disputes between parents		
Yes	39	46,4
Do not	45	53,6
Social skills		
Not Good	38	45,2
Good	46	54,8
Internet use		
Tall	34	40,5
Keep	41	48,8
Low	9	10,7
Juvenile delinquency		
Naughty	29	34,5
Not naughty	55	65,5
Total	84	100

Table 1 shows that most respondents had no parental marital discord (53.6%), good social skills (54.8%), moderate internet use (48.8%) and most were not delinquent (65.5%). Based on the results of the study showed that most of the time there were no parental disputes. Family for a teenager is the fulcrum and the first place in shelter from various problems. However, if there are various problems in the family, especially among parents, then the condition of the family environment is not a comfortable place for adolescents. Marital discord and inconsistency between parents are considered important risk factors related to adolescent problematic behavior.(3). Adolescence is a stage of development, where at that age adolescents are in the age category of puberty so they tend to easily experience various problems. Adolescents tend to assume that delinquent actions are the most appropriate behavior to overcome social problems and get what they want(4)

### The relationship of parental marital discord and juvenile delinquency.

**Table 2. Parental Marital Disputes and Juvenile Delinquency.**

Parental disputes	marital	Juvenile delinquency			<i>p-value</i>	<i>Odd ratio (CI-95%)</i>
		Naughty n (%)	Not naughty n (%)	Total n (%)		
Already		19 (65,5)	20(36,4)	39(100)	0,020	3,325 (1,296-8,533)
Do not		10(34,5)	35(63,6)	45(100)		
Total		29(100)	55(100)	84(100)		

Table 2 shows that there is a relationship between parental marital discord and juvenile delinquency. Students who are in parental marital disputes are at risk and have 3,3 times higher for juvenile delinquency compared to those without parental marital disputes. Pathological or unhealthy interpersonal relationships in the family have contributed immensely to a person's mental attitude.(5). The family has an important role in determining juvenile delinquency.(6) The family itself is the most important person in determining the education of children, children begin to learn and imitate what they see, especially the behavior of parents because the family is one of the shapers of the child's character.

The mechanisms by which conflicting parental relationships and parenting practices influence adolescent antisocial behavior are not yet adequately understood. To bring more understanding of the interconnected mechanisms of marital discord with inconsistencies between parents in parenting practices, and these family conditions influence juvenile delinquency through their spillover effect on mental health issues, parental attachment and delinquent peer associations among adolescents(7)

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### The relationship between social skills and juvenile delinquency

**Table 3. The relationship between social skills and juvenile delinquency.**

Social skills	Juvenile delinquency			<i>p-value</i>	<i>Odd ratio (CI-95%)</i>
	Naughty n (%)	Not naughty n (%)	Total n (%)		
Not good	19(65,5)	19(34,5)	38(100)		
Good	10(34,5)	36(65,5)	46(100)	0,013	3,60 (1,398-9,273)
Total	29(100)	55(100)	84(100)		

Table 3 shows that there is a relationship between social skills and juvenile delinquency. Students with poor social skills have a 3.6 times higher risk of juvenile delinquency than those with good social skills. Social skills are one of the many skills that teenagers must master.(8) Adolescent social skills can be seen from the way they interact when finding problems in a group, as well as how to adjust to existing group conditions. Social skills are said to be high if adolescents are able to show social skills characteristics such as having sites or social awareness, idea skills, effectiveness, and strong influence in communicating with other people or groups, developing empathetic attitudes, or the ability of individuals to relate to others on a more personal level, and are skilled in interacting. (9)

### The relationship between Internet use and juvenile delinquency.

**Table 4. The relationship between internet use and juvenile delinquency.**

Internet use	Juvenile delinquency			<i>p-value</i>
	Naughty n (%)	Not naughty n (%)	Total n (%)	
Long	19(65)	15(27,3)	34(40,5)	
Medium	8(27,6)	33(60)	41(48,8)	0,003
Short	2(6,9)	7(12,7)	9(10,7)	
Total	29(100)	55(100)	84(100)	

Table 4 shows that there is a relationship between internet use and juvenile delinquency. The higher the student's use of the internet, the more juvenile delinquency will increase. The internet today is not something foreign among teenagers, as teenagers use the media to access various information. The internet media has a very influential role in juvenile delinquency, and can trigger the emergence of sexual behavior.(10) The occurrence of juvenile delinquency is caused by two factors: internal factors, and external factors. It is also caused by mental conflicts, a sense of non-fulfillment of basic needs, poverty, and adverse and conflicting socio-economic inequalities.(11,12)

**Table 5. Multivariate analysis Risk and Protective Factors of Juvenile Delinquency Among Junior High School Students**

	B	S.E.	Wald	p-value	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Parental marital discord	1.302	.530	6.027	.014	3.677	1.300	10.395
Social skills	5.589	2.297	5.921	.015	267.392	2.966	24107.348
Use the internet*Social skills	-2.219	1.175	3.565	.059	.109	.011	1.088
Constant	-1.994	.502	15.796	.000	.136		

In multivariate analysis, it was found that there were two meaningful variables, meaning that there was a relationship between family discord variables and social skills with juvenile delinquency. The dominant variable was social skills (OR=5,60).

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Equation:

$$\text{Juvenile Delinquency}(Y) = -1,994 + 1.30 * (\text{parental marital discord}) + 5.60 * (\text{Social Skills}) - 2.22 * (\text{Use the internet} * \text{Social skills})$$

Juvenile delinquency can be prevented by controlling parental marital discord factors (social skills) and preventing interaction of Internet use without adolescent social skills. The most dominant variable is the social skills variable with an OR value of 5,6 meaning that adolescents who have low social skills are 5,5 times more likely to experienced juvenile delinquency compared to adolescents who had high social skills after being controlled by parental marital discord variables. As for the value of R squared, obtained value = 0.28, meaning that the relationship between family disputes and social skills with juvenile delinquency can be described by 28%.

Juvenile delinquency is an act that violates norms, rules, or laws in a society committed during adolescence. Juvenile delinquency is also known as behavioral deviation by the participation of a juvenile in illegal behavior (13). Low parental self-control correlates with various aspects of the family environment and juvenile delinquency, and that the relationship between low parental self-control and juvenile delinquency is mediated by the family environment. The relationship between low parental self-control and the family environment may be reciprocal(14). Family processes, adolescent religious involvement, and self-control can serve as important mechanisms mediating the relationship between parental religious involvement and delinquency. The religious involvement of parents operates to prevent the delinquent behavior of the offspring(15).

There is a relationship between parental marital discord and juvenile delinquency. There is an influence of family harmony on juvenile delinquency. Juvenile delinquency is determined 80% by the harmony of the family itself(16). There are divorced parents with juvenile delinquency. The results of the analysis in this study obtained an *odds ratio* value of 3.32, meaning that parental marital disputes have a chance factor of 3.32 times to cause juvenile delinquency. The results explain that parental disputes have an important role in determining juvenile delinquency behavior(17).

There is a relationship between social skills and juvenile delinquency, in line with the results of research shows that there is a relationship between the power of school social control and the level of delinquency. With an *odds ratio* of 3.50, it means that poor adolescent social skills have a chance factor of 3.50 times to cause juvenile delinquency(3). The social skills are the ability of a teenager to express emotions both verbally and non-verbally that can be accepted or responded to (responded) and beneficial for themselves and the ability to adjust to the surrounding environment(18).

Internet use that is too high will have an impact on the ability to communicate and establish good relationships in the social environment. Children communicate too much in cyberspace, then knowledge about the ins and outs of communicating in real life, such as body language and tone of voice, becomes reduced. This condition will indirectly cause delinquency in adolescents(10,19). At the level in the family, parental behavioral control negatively predicts juvenile delinquency. Juvenile disclosure and delinquency, and juvenile disclosure and parental solicitation, reciprocally predict each other. Parental requests negatively predict parental behavioral control. The findings point to the important role of juvenile disclosure in family processes regarding parent-adolescent communication and juvenile delinquency(20).

### CONCLUSION

Most teenagers have no marital discord with their parents, good social skills and moderate internet use, and juvenile delinquency is not serious. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. The dominant variable is social skills. Improve communication within the family, provide education and character education, involve adolescents in positive activities (sports, discussions, art, etc.)

### CONFLICTS OF INTEREST

The authors declare no conflict of interest

### REFERENCES

- 1) Sharma S, Sharma G, Barkataki B. Substance use and criminality among juveniles-under-enquiry in New Delhi. Indian J Psychiatry. 2016;58(2):178–82.
- 2) Santrock JW. Child Development [Internet]. McGraw Hill; 2009. Available from: <https://books.google.co.id/books?id=I58GLwAACAAJ>
- 3) Van Dijk R, van der Valk IE, Deković M, Branje S. A meta-analysis on interparental conflict, parenting, and child adjustment in divorced families: Examining mediation using meta-analytic structural equation models. Clin Psychol Rev [Internet]. 2020;79:101861. Available from: <https://www.sciencedirect.com/science/article/pii/S0272735820300490>



## Effective Methods of Preventing the Risk of Juvenile Delinquency: A Case Study in High School Children

- 4) Jordaan J, Beukes R, Esterhuysen K. The Development and Evaluation of a Life Skills Programme for Young Adult Offenders. *Int J Offender Ther Comp Criminol*. 2018 Aug;62(10):3077–96.
- 5) Ramadhani PE, Krisnani H. Analisis Dampak Perceraian Orang Tua Terhadap Anak Remaja. *Focus J Pekerj Sos*. 2019;2(1):109.
- 6) Walters GD, Runell L, Kremser J. Family structure and delinquency: Antisocial cognition as a mediating mechanism. *J Adolesc*. 2022 Jul;94(5):776–88.
- 7) Liu T-H, Li S De, Zhang X, Xia Y. The Spillover Mechanisms Linking Family Conflicts and Juvenile Delinquency Among Chinese Adolescents. *Int J Offender Ther Comp Criminol* [Internet]. 2020;64(2–3):167–86. Available from: <https://doi.org/10.1177/0306624X19842057>
- 8) Taussig HN, Dmitrieva J, Garrido EF, Cooley JL, Crites E. Fostering Healthy Futures Preventive Intervention for Children in Foster Care: Long-term Delinquency Outcomes from a Randomized Controlled Trial. *Prev Sci*. 2021 Nov;22(8):1120–33.
- 9) Van der Stouwe T, Asscher JJ, Hoeve M, van der Laan PH, Stams GJJM. The Influence of Treatment Motivation on Outcomes of Social Skills Training for Juvenile Delinquents. *Int J Offender Ther Comp Criminol*. 2018 Jan;62(1):108–28.
- 10) Hou F. Echoing Mechanism of Juvenile Delinquency Prevention and Occupational Therapy Education Guidance Based on Artificial Intelligence. *Occup Ther Int*. 2022;2022:9115547.
- 11) Pardini D. Empirically Based Strategies for Preventing Juvenile Delinquency. *Child Adolesc Psychiatr Clin N Am* [Internet]. 2016;25(2):257–68. Available from: <https://www.sciencedirect.com/science/article/pii/S1056499315001145>
- 12) Assink M, van der Put CE, Hoeve M, de Vries SLA, Stams GJJM, Oort FJ. Risk factors for persistent delinquent behavior among juveniles: A meta-analytic review. *Clin Psychol Rev* [Internet]. 2015;42:47–61. Available from: <https://www.sciencedirect.com/science/article/pii/S0272735815001051>
- 13) Alduraywish MA. Juvenile Delinquency and Differential Association Theory. *Adv Appl Sociol*. 2021;11(08):341–9.
- 14) Meldrum RC, Connolly GM, Flexon J, Guerette RT. Parental Low Self-Control, Family Environments, and Juvenile Delinquency. *Int J Offender Ther Comp Criminol*. 2016 Oct;60(14):1623–44.
- 15) Guo S. A model of religious involvement, family processes, self-control, and juvenile delinquency in two-parent families. *J Adolesc*. 2018 Feb;63:175–90.
- 16) Mwangangi RK. The Role of Family in Dealing with Juvenile Delinquency. *Open J Soc Sci*. 2019;07(03):52–63.
- 17) Peris TS, Emery RE. A prospective study of the consequences of marital disruption for adolescents: predisruption family dynamics and postdisruption adolescent adjustment. *J Clin Child Adolesc Psychol Off J Soc Clin Child Adolesc Psychol Am Psychol Assoc Div 53*. 2004 Dec;33(4):694–704.
- 18) Kahn RE, Ermer E, Salovey P, Kiehl KA. Emotional Intelligence and Callous-Unemotional Traits in Incarcerated Adolescents. *Child Psychiatry Hum Dev*. 2016 Dec;47(6):903–17.
- 19) Folk JB, Harrison A, Rodriguez C, Wallace A, Tolou-Shams M. Feasibility of Social Media-Based Recruitment and Perceived Acceptability of Digital Health Interventions for Caregivers of Justice-Involved Youth: Mixed Methods Study. *J Med Internet Res*. 2020 Apr;22(4):e16370.
- 20) Kapetanovic S, Boele S, Skoog T. Parent-Adolescent Communication and Adolescent Delinquency: Unraveling Within-Family Processes from Between-Family Differences. *J Youth Adolesc*. 2019 Sep;48(9):1707–23.



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**ABSTRACT:** The problem of student delinquency has existed for a long time. However, it is currently difficult to overcome due to several factors such as the government, parents, and families. In particular, the contributing factors can include parental marital discord, social skills, and internet use. This study aims to analyze the relationship between parents' marital discord, social skills, internet use, and the occurrence of juvenile delinquency. This was quantitative research with an analytical descriptive design. The population was 508 students in Wonosobo. Furthermore, 84 were selected as the samples using the random sampling proportion technique. In addition, the test used the chi-square test. The results showed that most respondents had no marital discord with their parents (53.6%). Respondents with good social skills and moderate internet use (48.8%). Students committed juvenile delinquency, but not seriously by 65.5%. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. In the multivariate analysis, Juvenile delinquency can be prevented by controlling parental marital discord factors, and social skills and preventing interaction of Internet use without adolescent social skills. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. Social skills are a major factor in juvenile delinquency

**KEYWORDS:** Effective methods, preventing the risk, juvenile Delinquency, parental marital Discord

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### **INTRODUCTION**

In the era of globalization, many things have changed. The adolescent association is a small example of the many consequences of globalization. The association of teenagers has no limits anymore. Many things they do without thinking about the harmful effects on themselves and others. Student delinquency is nothing new, the problem of student delinquency has been around for a long time. The current delinquent behavior of students is difficult to overcome. There are so many cases of delinquency committed by students both in the school environment and outside the school. Juvenile delinquency is often found in skipping school, brawling, fighting, drug abuse, consuming alcohol, sexual harassment, theft, to criminal acts that can take the lives of others. (1)

There are several factors that influence juvenile delinquency. According to Santrock (2007), the factors that influence juvenile delinquency are (1) identity, (2) self-control, (3) age, (4) gender, (5) family process, (6) peer influence, (7) socioeconomic class, (8) quality of the living environment, (9) expectations of education and values in school. (2)

Based on the results of a preliminary study conducted by researchers at SMKN 1 Wonosobo by asking guidance counseling teachers and students, information was obtained that there were students who became pregnant out of wedlock due to promiscuity with their lovers and that every year there were fights in the school environment whether it was women or men, besides that the delinquency that was often done was about disciplinary resistance such as not going to school (truant) to be in class XI. and XII. Researchers also conducted interviews with 10 students and researchers found that 8 of the 10 students violated school rules such as truancy, arriving late, speeding on the road, smoking, drinking alcohol, playing games during school hours, dating in the school environment, and 2 of them admitted to having sex with their girlfriends and tried to use narcotics, namely the type of gorilla that was already in the form of cigarettes because they were influenced by friend others. The student also admitted they did it out of style and bandwagon with his friend. The purpose of the study wants to are interested in understanding the relationship between parental marital disputes, social skills, and internet use with the occurrence of juvenile delinquency in the Wonosobo Regency.

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## METHOD

This type of research is quantitative with an analytical descriptive design. The population is all students of classes XI, and XII with a total of 508 students. The sampling technique uses a random sampling proportion technique of 84 students. Tests used the chi-square test

## RESULT AND DISCUSSION

### Marital disputes of parents, social skills, internet use, and juvenile delinquency.

**Table 1. Marital Parental Disputes, Social Skills, Internet Use, and Juvenile Delinquency.**

Variable	n	%
Marital disputes between parents		
Yes	39	46,4
Do not	45	53,6
Social skills		
Not Good	38	45,2
Good	46	54,8
Internet use		
Tall	34	40,5
Keep	41	48,8
Low	9	10,7
Juvenile delinquency		
Naughty	29	34,5
Not naughty	55	65,5
Total	84	100

Table 1 shows that most respondents had no parental marital discord (53.6%), good social skills (54.8%), moderate internet use (48.8%) and most were not delinquent (65.5%). Based on the results of the study showed that most of the time there were no parental disputes. Family for a teenager is the fulcrum and the first place in shelter from various problems. However, if there are various problems in the family, especially among parents, then the condition of the family environment is not a comfortable place for adolescents. Marital discord and inconsistency between parents are considered important risk factors related to adolescent problematic behavior.(3). Adolescence is a stage of development, where at that age adolescents are in the age category of puberty so they tend to easily experience various problems. Adolescents tend to assume that delinquent actions are the most appropriate behavior to overcome social problems and get what they want(4)

### The relationship of parental marital discord and juvenile delinquency.

**Table 2. Parental Marital Disputes and Juvenile Delinquency.**

Parental disputes	marital	Juvenile delinquency			<i>p-value</i>	<i>Odd ratio (CI-95%)</i>
		Naughty n (%)	Not naughty n (%)	Total n (%)		
Already		19 (65,5)	20(36,4)	39(100)	0,020	3,325 (1,296-8,533)
Do not		10(34,5)	35(63,6)	45(100)		
Total		29(100)	55(100)	84(100)		

Table 2 shows that there is a relationship between parental marital discord and juvenile delinquency. Students who are in parental marital disputes are at risk and have 3,3 times higher for juvenile delinquency compared to those without parental marital disputes. Pathological or unhealthy interpersonal relationships in the family have contributed immensely to a person's mental attitude.(5). The family has an important role in determining juvenile delinquency.(6) The family itself is the most important person in determining the education of children, children begin to learn and imitate what they see, especially the behavior of parents because the family is one of the shapers of the child's character.

The mechanisms by which conflicting parental relationships and parenting practices influence adolescent antisocial behavior are not yet adequately understood. To bring more understanding of the interconnected mechanisms of marital discord with inconsistencies between parents in parenting practices, and these family conditions influence juvenile delinquency through their spillover effect on mental health issues, parental attachment and delinquent peer associations among adolescents(7)

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### The relationship between social skills and juvenile delinquency

**Table 3. The relationship between social skills and juvenile delinquency.**

Social skills	Juvenile delinquency			<i>p-value</i>	<i>Odd ratio (CI-95%)</i>
	Naughty n (%)	Not naughty n (%)	Total n (%)		
Not good	19(65,5)	19(34,5)	38(100)		
Good	10(34,5)	36(65,5)	46(100)	0,013	3,60 (1,398-9,273)
Total	29(100)	55(100)	84(100)		

Table 3 shows that there is a relationship between social skills and juvenile delinquency. Students with poor social skills have a 3.6 times higher risk of juvenile delinquency than those with good social skills. Social skills are one of the many skills that teenagers must master.(8) Adolescent social skills can be seen from the way they interact when finding problems in a group, as well as how to adjust to existing group conditions. Social skills are said to be high if adolescents are able to show social skills characteristics such as having sites or social awareness, idea skills, effectiveness, and strong influence in communicating with other people or groups, developing empathetic attitudes, or the ability of individuals to relate to others on a more personal level, and are skilled in interacting. (9)

### The relationship between Internet use and juvenile delinquency.

**Table 4. The relationship between internet use and juvenile delinquency.**

Internet use	Juvenile delinquency			<i>p-value</i>
	Naughty n (%)	Not naughty n (%)	Total n (%)	
Long	19(65)	15(27,3)	34(40,5)	
Medium	8(27,6)	33(60)	41(48,8)	0,003
Short	2(6,9)	7(12,7)	9(10,7)	
Total	29(100)	55(100)	84(100)	

Table 4 shows that there is a relationship between internet use and juvenile delinquency. The higher the student's use of the internet, the more juvenile delinquency will increase. The internet today is not something foreign among teenagers, as teenagers use the media to access various information. The internet media has a very influential role in juvenile delinquency, and can trigger the emergence of sexual behavior.(10) The occurrence of juvenile delinquency is caused by two factors: internal factors, and external factors. It is also caused by mental conflicts, a sense of non-fulfillment of basic needs, poverty, and adverse and conflicting socio-economic inequalities.(11,12)

**Table 5. Multivariate analysis Risk and Protective Factors of Juvenile Delinquency Among Junior High School Students**

	B	S.E.	Wald	p-value	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Parental marital discord	1.302	.530	6.027	.014	3.677	1.300	10.395
Social skills	5.589	2.297	5.921	.015	267.392	2.966	24107.348
Use the internet*Social skills	-2.219	1.175	3.565	.059	.109	.011	1.088
Constant	-1.994	.502	15.796	.000	.136		

In multivariate analysis, it was found that there were two meaningful variables, meaning that there was a relationship between family discord variables and social skills with juvenile delinquency. The dominant variable was social skills (OR=5,60).

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Equation:

$$\text{Juvenile Delinquency}(Y) = -1,994 + 1.30 * (\text{parental marital discord}) + 5.60 * (\text{Social Skills}) - 2.22 * (\text{Use the internet} * \text{Social skills})$$

Juvenile delinquency can be prevented by controlling parental marital discord factors (social skills) and preventing interaction of Internet use without adolescent social skills. The most dominant variable is the social skills variable with an OR value of 5,6 meaning that adolescents who have low social skills are 5,5 times more likely to experienced juvenile delinquency compared to adolescents who had high social skills after being controlled by parental marital discord variables. As for the value of R squared, obtained value = 0.28, meaning that the relationship between family disputes and social skills with juvenile delinquency can be described by 28%.

Juvenile delinquency is an act that violates norms, rules, or laws in a society committed during adolescence. Juvenile delinquency is also known as behavioral deviation by the participation of a juvenile in illegal behavior (13). Low parental self-control correlates with various aspects of the family environment and juvenile delinquency, and that the relationship between low parental self-control and juvenile delinquency is mediated by the family environment. The relationship between low parental self-control and the family environment may be reciprocal(14). Family processes, adolescent religious involvement, and self-control can serve as important mechanisms mediating the relationship between parental religious involvement and delinquency. The religious involvement of parents operates to prevent the delinquent behavior of the offspring(15).

There is a relationship between parental marital discord and juvenile delinquency. There is an influence of family harmony on juvenile delinquency. Juvenile delinquency is determined 80% by the harmony of the family itself(16). There are divorced parents with juvenile delinquency. The results of the analysis in this study obtained an *odds ratio* value of 3.32, meaning that parental marital disputes have a chance factor of 3.32 times to cause juvenile delinquency. The results explain that parental disputes have an important role in determining juvenile delinquency behavior(17).

There is a relationship between social skills and juvenile delinquency, in line with the results of research shows that there is a relationship between the power of school social control and the level of delinquency. With an *odds ratio* of 3.50, it means that poor adolescent social skills have a chance factor of 3.50 times to cause juvenile delinquency(3). The social skills are the ability of a teenager to express emotions both verbally and non-verbally that can be accepted or responded to (responded) and beneficial for themselves and the ability to adjust to the surrounding environment(18).

Internet use that is too high will have an impact on the ability to communicate and establish good relationships in the social environment. Children communicate too much in cyberspace, then knowledge about the ins and outs of communicating in real life, such as body language and tone of voice, becomes reduced. This condition will indirectly cause delinquency in adolescents(10,19). At the level in the family, parental behavioral control negatively predicts juvenile delinquency. Juvenile disclosure and delinquency, and juvenile disclosure and parental solicitation, reciprocally predict each other. Parental requests negatively predict parental behavioral control. The findings point to the important role of juvenile disclosure in family processes regarding parent-adolescent communication and juvenile delinquency(20).

### CONCLUSION

Most teenagers have no marital discord with their parents, good social skills and moderate internet use, and juvenile delinquency is not serious. There is a correlation between parental marital discord, social skills, internet use, and juvenile delinquency. The dominant variable is social skills. Improve communication within the family, provide education and character education, involve adolescents in positive activities (sports, discussions, art, etc.)

### CONFLICTS OF INTEREST

The authors declare no conflict of interest

### REFERENCES

- 1) Sharma S, Sharma G, Barkataki B. Substance use and criminality among juveniles-under-enquiry in New Delhi. Indian J Psychiatry. 2016;58(2):178–82.
- 2) Santrock JW. Child Development [Internet]. McGraw Hill; 2009. Available from: <https://books.google.co.id/books?id=I58GLwAACAAJ>
- 3) Van Dijk R, van der Valk IE, Deković M, Branje S. A meta-analysis on interparental conflict, parenting, and child adjustment in divorced families: Examining mediation using meta-analytic structural equation models. Clin Psychol Rev [Internet]. 2020;79:101861. Available from: <https://www.sciencedirect.com/science/article/pii/S0272735820300490>

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- 4) Jordaan J, Beukes R, Esterhuysen K. The Development and Evaluation of a Life Skills Programme for Young Adult Offenders. *Int J Offender Ther Comp Criminol*. 2018 Aug;62(10):3077–96.
- 5) Ramadhani PE, Krisnani H. Analisis Dampak Perceraian Orang Tua Terhadap Anak Remaja. *Focus J Pekerj Sos*. 2019;2(1):109.
- 6) Walters GD, Runell L, Kremser J. Family structure and delinquency: Antisocial cognition as a mediating mechanism. *J Adolesc*. 2022 Jul;94(5):776–88.
- 7) Liu T-H, Li S De, Zhang X, Xia Y. The Spillover Mechanisms Linking Family Conflicts and Juvenile Delinquency Among Chinese Adolescents. *Int J Offender Ther Comp Criminol* [Internet]. 2020;64(2–3):167–86. Available from: <https://doi.org/10.1177/0306624X19842057>
- 8) Taussig HN, Dmitrieva J, Garrido EF, Cooley JL, Crites E. Fostering Healthy Futures Preventive Intervention for Children in Foster Care: Long-term Delinquency Outcomes from a Randomized Controlled Trial. *Prev Sci*. 2021 Nov;22(8):1120–33.
- 9) Van der Stouwe T, Asscher JJ, Hoeve M, van der Laan PH, Stams GJJM. The Influence of Treatment Motivation on Outcomes of Social Skills Training for Juvenile Delinquents. *Int J Offender Ther Comp Criminol*. 2018 Jan;62(1):108–28.
- 10) Hou F. Echoing Mechanism of Juvenile Delinquency Prevention and Occupational Therapy Education Guidance Based on Artificial Intelligence. *Occup Ther Int*. 2022;2022:9115547.
- 11) Pardini D. Empirically Based Strategies for Preventing Juvenile Delinquency. *Child Adolesc Psychiatr Clin N Am* [Internet]. 2016;25(2):257–68. Available from: <https://www.sciencedirect.com/science/article/pii/S1056499315001145>
- 12) Assink M, van der Put CE, Hoeve M, de Vries SLA, Stams GJJM, Oort FJ. Risk factors for persistent delinquent behavior among juveniles: A meta-analytic review. *Clin Psychol Rev* [Internet]. 2015;42:47–61. Available from: <https://www.sciencedirect.com/science/article/pii/S0272735815001051>
- 13) Alduraywish MA. Juvenile Delinquency and Differential Association Theory. *Adv Appl Sociol*. 2021;11(08):341–9.
- 14) Meldrum RC, Connolly GM, Flexon J, Guerette RT. Parental Low Self-Control, Family Environments, and Juvenile Delinquency. *Int J Offender Ther Comp Criminol*. 2016 Oct;60(14):1623–44.
- 15) Guo S. A model of religious involvement, family processes, self-control, and juvenile delinquency in two-parent families. *J Adolesc*. 2018 Feb;63:175–90.
- 16) Mwangangi RK. The Role of Family in Dealing with Juvenile Delinquency. *Open J Soc Sci*. 2019;07(03):52–63.
- 17) Peris TS, Emery RE. A prospective study of the consequences of marital disruption for adolescents: predisruption family dynamics and postdisruption adolescent adjustment. *J Clin Child Adolesc Psychol Off J Soc Clin Child Adolesc Psychol Am Psychol Assoc Div 53*. 2004 Dec;33(4):694–704.
- 18) Kahn RE, Ermer E, Salovey P, Kiehl KA. Emotional Intelligence and Callous-Unemotional Traits in Incarcerated Adolescents. *Child Psychiatry Hum Dev*. 2016 Dec;47(6):903–17.
- 19) Folk JB, Harrison A, Rodriguez C, Wallace A, Tolou-Shams M. Feasibility of Social Media-Based Recruitment and Perceived Acceptability of Digital Health Interventions for Caregivers of Justice-Involved Youth: Mixed Methods Study. *J Med Internet Res*. 2020 Apr;22(4):e16370.
- 20) Kapetanovic S, Boele S, Skoog T. Parent-Adolescent Communication and Adolescent Delinquency: Unraveling Within-Family Processes from Between-Family Differences. *J Youth Adolesc*. 2019 Sep;48(9):1707–23.



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**ABSTRACT:** The concept of the Development Village Index (IDM) itself is then explained in the Ministry of Village Regulation (Permendes) No. 2 of 2016 concerning patterns and maps of village development development. In article 3 it is stated that the IDM concept is integrated from several categories within it which include: Economic Resilience Index (IKE), Environmental Resilience Index (IKL), and Social Resilience Index (IKS). These three factors are then used as a reference in the process of measuring the level of independence and progress of a village. The set of indicators developed in the Developing Village Index was developed based on the concept that towards an advanced and independent village a sustainable development framework is needed in which social, economic and ecological aspects become forces that complement each other and maintain the potential and ability of the village to prosper village life. Village community development and empowerment policies and activities must produce equity and justice, be based on and strengthen local and cultural values, and be environmentally friendly by managing the potential of natural resources properly and sustainably. In this context, social, economic and ecological resilience work as a dimension that strengthens the process and achievement of village community development and empowerment goals. In the village regulations themselves, Law no. 6 of 2014 has also provided a stimulus and supported the acceleration of the village development agenda (STIT et al., 2018). The thing that becomes the main focus point is the village community as the first subject and who gets attention for the independence of the village community. So that the process of forming an independent village community is expected to have positive implications for village communities and can increase the village development index. The Developing Village Index captures the development of Village independence based on the implementation of the Village Law with the support of Village Funds and Village Facilitators. The Development Village Index directs the accuracy of interventions in policies with the right correlation of development interventions from the Government in accordance with Community participation which correlates with the characteristics of the Village area, namely typology and social capital. To reduce the number of underdeveloped villages and increase the number of independent villages, an important problem that needs to be resolved is poverty. Poverty here has always received more attention from the Indonesian government. This happens because the government has realized the importance of solving the problem of poverty. Failure to resolve this problem will result in the emergence of various social, economic and political problems in society. In the context of village typology, the Developing Village Index classifies villages into five (5) statuses, namely: "(i) Very Underdeveloped Villages; (ii) Disadvantaged Villages; (iii) Developing Villages; (iv) Advanced Village; and (v) Independent Village". Of the five classifications, now the village statistics already have several divisions that are used as village indicators or parameters. The typology of the distribution of the Development Village Index (IDM) can be divided into several things, such as: "(1) very underdeveloped villages:  $< 0.491$ ; (2) underdeveloped villages:  $> 0.491$  and  $< 0.599$ ; (3) developing villages:  $> 0.599$  and  $< 0.707$ ; (4) developed villages:  $> 0.707$  and  $< 0.815$ ; and (5) independent villages:  $> 0.815$ " (Suroso, 2019). This study uses qualitative analysis with descriptive research methods. The research was conducted to describe the exact nature of the symptoms or signs and then the development of the relationship between the object of research and other social phenomena in the data obtained by means of literature review, through official documents that record the circumstances that occur in an object of research, in the form of magazines, results results of studies, theses, and survey results from various government agencies or not (Novriando & Purnomo, 2020). Case studies in this approach are adopted from Sugiyono's theory (2009) which says that documentation studies are a qualitative method by analyzing documents made by the subject himself or other people. The documentation study itself is a method used by qualitative researchers in obtaining a point of view or description of the object to be studied. Data collection techniques in this study used documentation techniques by collecting data

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using various documents or notes that recorded the state of the research concept in the unit of analysis used as the object of research. Data sources can come from documentation documents from the Village website or the results of previous studies. In terms of data analysis, the author uses narrative analysis to describe a phenomenon and dissect the innovations made by the Village in carrying out IDM-based development. Villages in Bati-Bati District will become the object of research with the research title "Village Development Study Based on IDM (Developing Village Index) in Bati-Bati District, Tanah Laut District".

**KEYWORDS:** Village Development and IDM Bati-Bati District, Tanah Laut Regency.

### 1. INTRODUCTION

#### 1.1. Background

Village development is a whole series of efforts carried out in the village environment which has the main aim of improving the standard of living of rural communities, and further strengthening the welfare of village communities with plans made on the basis of deliberation among village communities as well as conventional economic characteristics. Rural development is an important matter because the success of village development will have a direct impact on the success of development in the country's economy in industry 4.0 (Fadilurrahman et al., 2021).

The village as the smallest structure in government is a very strategic area in order to build a strong national economy. Villages in the Bati-bati District can be seen through the IDM village status.

**Table 1. IDM Bati-Bati District**

CODE	DISTRICT NAME	CODE	VILLAGE NAME
630105	BATI BATI	6301052001	THE GREAT CONTINENT
630105	BATI BATI	6301052002	BATI-BATI
630105	BATI BATI	6301052003	END
630105	BATI BATI	6301052004	LIANG ANGGANG
630105	BATI BATI	6301052005	VILLAGE BENTOK
630105	BATI BATI	6301052006	LAND BENT
630105	BATI BATI	6301052007	BAYU IRRANG
630105	BATI BATI	6301052008	BEAUTIFUL NUSA
630105	BATI BATI	6301052009	VIEW
630105	BATI BATI	6301052010	Padang
630105	BATI BATI	6301052011	NEW END
630105	BATI BATI	6301052012	WELCOME
630105	BATI BATI	6301052013	HOOKS
630105	BATI BATI	6301052014	NEW HOOKS

**Source:** IDM Bati-Bati District, 2022

The IDM concept itself is then explained in the Ministry of Village Regulation (Permendes) No. 2 of 2016 concerning patterns and maps of village development development. In article 3 it is stated that the IDM concept is integrated from several categories within it which include: Economic Resilience Index (IKE), Environmental Resilience Index (IKL), and Social Resilience Index (IKS). These three factors are then used as references in the process of measuring the strata of independence and progress of a village. The indicator set developed in the Developing Village Index was developed based on the concept that in order to achieve a developed and independent village, a sustainable development framework is needed in which social, economic and ecological aspects are forces that complement each other and maintain the potential and ability of the village to improve village life. Village community development and empowerment policies and activities must produce equality and justice, be based on and strengthen local and cultural values, and be environmentally friendly by managing natural resource potential well and sustainably. In this context, social, economic and ecological resilience work as dimensions that strengthen the process and achieve the goals of development and empowerment of village communities.

#### 1.2. Problem formulation

In the village regulation itself Law no. 6 of 2014 has also provided a stimulus and supported the acceleration of the village development agenda (STIT et al., 2018). The main focus point is the village community as the first subject and what gets attention is the independence of the village community. So it is hoped that the process of forming an independent village community will provide positive implications for the village community and can increase the village development index. The Village Development



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Index captures the development of Village independence based on the implementation of the Village Law with the support of Village Funds and Village Assistants.

The Developing Village Index directs the appropriateness of intervention in policy by correlating appropriate development intervention from the Government in accordance with community participation which correlates with the characteristics of the village area, namely typology and social capital. To reduce the number of underdeveloped villages and increase the number of independent villages, an important problem that needs to be resolved is poverty. Poverty here has always received more attention from the Indonesian government. This happens because the government has realized the importance of solving the problem of poverty. Failure to resolve this problem will result in the emergence of various social, economic and political problems in society. The formulation of the research problem is as follows:

1. How to measure village development using the IDM (Building Village Index) method in Bati-Bati District?
2. How to see the level of social, economic and ecological resilience with the IDM (Building Village Index) method in Bati- Bati District?
3. How to see the status of villages (Independent Villages , Advanced Villages , Developing Villages, Disadvantaged Villages and Very Disadvantaged Villages using the IDM (Developing Village Index) method in Bati-Bati District?

### 1.3. Research Objectives

This research aims to measure village development performance. IDM is an important indicator for measuring the success of a village in carrying out its development. Village status, referred to as village classification based on IDM, is explained in the Minister of Village Regulation PDT Trans No. 2 of 2016, which classifies villages into 5 statuses, namely independent villages, developed villages, developing villages, underdeveloped villages, very underdeveloped villages.

## 2. LITERATURE REVIEW

The village has a significant role in efforts to determine the direction of the vision of forming better Indonesian human resources in the future. These efforts can be started by driving development, improving the quality of life, and the welfare of rural communities (Ramadhani et al., 2021).

An important aspect to achieve this vision is village development. In terms of village development, the instruments that need to be known are the actual problems experienced by the village and how big and strong the village's potential is (Satriadi, 2023).

Ministry of Villages, Development of Disadvantaged Regions and Transmigration through Permendesa No. 2 of 2016, has set several indicators that make it easy for villages to find out the degree of independence of their village. With this instrument, the village can identify and gather information, the extent of the problems experienced and the potential they have to push the village out of the trap of the problem. This instrument is known as the Development Village Index (IDM). The Development Village Index (IDM) is a composite index formed from 3 types of indices, namely **the Social Resilience Index, the Economic Resilience Index and the Ecological/Environmental Resilience Index**. The Developing Village Index was developed based on the concept that in order to lead to an advanced and independent village a sustainable development framework is needed in which social, economic and ecological aspects become complementary forces and maintain the potential and ability of the village to prosper village life. The Social Resilience Index consists of:

1. Dimensions of Social Capital (indicators of social solidarity, tolerance, sense of security, social welfare);
2. Health Dimension (indicators of health services, community empowerment, and health insurance);
3. Education Dimension (indicators of access to primary and secondary education, access to non-formal education and access to knowledge);
4. Settlement Dimension (indicators of access to clean water, access to sanitation, access to electricity, and access to information and communication).

The Economic Resilience Index consists of Economic Dimensions (indicators of diversity in village community production, availability of trade service centers, access to distribution/logistics, access to financial and credit institutions, economic institutions, and regional openness). The Environmental/Ecological Resilience Index consists of Ecological Dimensions (indicators of environmental quality and potential for disaster vulnerability and disaster response). The Ministry of Villages, Development of Disadvantaged Regions and Transmigration (PDTT) launched the Developing Village Index (IDM) in October 2016. The Developing Village Index itself was created to support the Nawa Cita program initiated by the government during the leadership of Joko Widodo and Jusuf Kalla as outlined in the Development Plan National Medium Term (RPJMN) 2015-2019. The Development Village Index can be used as a reference in carrying out development integration, affirmation and synergy. The hope is that the condition

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of a prosperous, just and independent village community will be realized. The Development Village Index (IDM) classifies villages into five statuses namely:

1. Independent Village
2. Advanced Village
3. Developing Village
4. Disadvantaged Villages
5. Very Underdeveloped Village

The classification above is useful for sharpening the determination of village development status as well as as a reference for policy intervention. The aim of the Developing Village Index as contained in the 2015 - 2019 National Medium Term Development Plan document, the preparation of the Developing Village Index is intended to provide a measure that is able to see the position and status of villages as well as the direction of the village's level of progress and independence. The objectives of compiling the Developing Village Index are as follows:

1. Become an instrument in determining the status/position of the village and assessing the level of progress and independence of the village
2. Becomes material for preparing village-based target locations (loci).
3. Become a coordinating instrument with Ministries/Agencies, Regional and Village Governments, as well as other institutions

Basically, the Developing Village Index was prepared to support the government's efforts to address the alleviation of disadvantaged villages and increase independent villages. Legal basis for the Developing Village Index . The legal basis that strengthens the status of the Developing Village Index is as follows:

1. Law Number 6 of 2014 concerning Villages
2. Regulation of the Minister of Villages, Development of Disadvantaged Regions and Transmigration No. 2 of 2016 concerning the Developing Village Index
3. Source IDM Kemendesa PDTT official website - <https://idm.kemendesa.go.id>

**Table 2. Related Journals (Last 10 Years)**

No.	Title	Journal
1.	Setyobakti, MH (2017). Identification of village problems and potential based on the Village Development Index (IDM) in Gondowangi Village, Wagir District, Malang Regency.	WIGA - Journal of Economic Research, 7(1), 1-14. <a href="https://media.neliti.com/media/publications/164427-ID-identification-problem-dan-potensi-desa-be.pdf">https://media.neliti.com/media/publications/164427-ID-identification-problem-dan-potensi-desa-be.pdf</a>
2.	Muhtarom, M., Nurhadi Kusuma, MPI, & Eri Purwanti, M. (2018)., Analysis of the Development Village Index to Understand Village Development Development Patterns in Gadingrejo District, Pringsewu Regency	DOI: 10.35450/JIP.V6I02.96 Corpus ID: 134029978
3.	Netra Ekawati, Asdi Agustar, Devi Analia (2022). Use of Village Funds and Its Implications for the Village Development Index (IDM)	<a href="http://dx.doi.org/10.31258/jkp.v13i2.8005">http://dx.doi.org/10.31258/jkp.v13i2.8005</a> <a href="https://jkp.ejournal.unri.ac.id/index.php/JKP/article/view/8005">https://jkp.ejournal.unri.ac.id/index.php/JKP/article/view/8005</a>
4.	Salmah, Fredi Andria, Amelia Rahmi (2022). Village Clusterization Through IDM as a Basic Foundation for Village Development in Bogor Regency.	<a href="https://journal.unpak.ac.id/index.php/palar/article/view/6809/3657">https://journal.unpak.ac.id/index.php/palar/article/view/6809/3657</a>
5.	K. Intan Dwi Fajar, R Rijanta, Andri Kurniawan (2019). Exploration of Sustainable Development Variables for the Java Island Developing Village Index	<a href="https://www.journal.ugm.ac.id/mgi/article/view/73056/35772">https://www.journal.ugm.ac.id/mgi/article/view/73056/35772</a>
6.	Ari Kristin Prasetyoningrum (2018). Analysis of the Influence of the Human Development Index (HDI), Economic Growth, and Unemployment on Poverty in Indonesia	<a href="https://www.researchgate.net/journal/Equilibrium-Jurnal-Ekonomi-Syariah-2355-0228">https://www.researchgate.net/journal/Equilibrium-Jurnal-Ekonomi-Syariah-2355-0228</a>

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7.	Ade Irma Seska Arina, Vecky Masinambow, Een N. Walewangko (2021). The Influence of Village Funds and Village Fund Allocation on the Village Development Index in Southeast Minahasa Regency	<a href="https://doi.org/10.35794/jpekd.14203.18.3.2016">https://doi.org/10.35794/jpekd.14203.18.3.2016</a>
8.	Agus Nyoman Astika (2021). Evaluation of Village Development Based on the Village Development Index	<a href="https://www.researchgate.net/journal/Jurnal-Ilmiah-Mugoddimah-Jurnal-Ilmu-Sosial-Politik-dan-Hummaniora-2548-5067">https://www.researchgate.net/journal/Jurnal-Ilmiah-Mugoddimah-Jurnal-Ilmu-Sosial-Politik-dan-Hummaniora-2548-5067</a>
9.	Netra Ekawati, Asdi Agustar, Devi Analia (2022). Use of Village Funds and Its Implications for the Developing Village Index (IDM)	<a href="https://jkp.ejournal.unri.ac.id/">https://jkp.ejournal.unri.ac.id/</a>
10.	Eka Setyowati (2019). Village Governance on Differences in Developing Village Index (IDM) : Study of Three Villages in Malang District	<a href="https://www.neliti.com/publications/433744/tata-kelola-Government-desa-pada-perbedaan-indeks-desa-membuild-idm-studi-tig">https://www.neliti.com/publications/433744/tata-kelola-Government-desa-pada-perbedaan-indeks-desa-membuild-idm-studi-tig</a>

Source: Abstracted from the Online Journal, 2023

In the village regulation itself Law no. 6 of 2014 has also provided a stimulus and supported the acceleration of the village development agenda (STIT et al., 2018). The thing that becomes the main focus point is the village community as the first subject and who gets attention for the independence of the village community. So that the process of forming an independent village community is expected to have positive implications for village communities and can increase the village development index (Chartady, 2023).

To reduce the number of underdeveloped villages and increase the number of independent villages, an important problem that needs to be resolved is poverty. Poverty here has always received more attention from the Indonesian government. This happens because the government has realized the importance of solving the problem of poverty. Failure to resolve this problem will result in the emergence of various social, economic and political problems in society 5.0 (Shaddiq et al., 2021).

Strengthening the power of village officials can strengthen the principles that form the basis of village regulations in the Village Law. Village authority itself is interpreted to include village management, implementation of village development, development of village communities, and authority to empower village communities based on initiative, rights to origins, community and customs. In the focus of its own power which is based on the rights of origin and regional authority at the village scale, there are three things that are indicators, namely community initiative, rights of origin, and village customs which will strengthen the foundation of village autonomy. Within the framework of this understanding, the "Building Village Index" method was developed. IDM believes in the importance of initiative and the strength of rural communities in the process of progress and empowerment of rural life with social, economic and ecological resilience (KEMENDES RI, 2015).

This typology is in line with Village Minister Regulation no. 6 of 2016 which regulates village development maps. **The first** is very underdeveloped villages or underdeveloped villages. The characteristics of this village have several concepts in its development such as: firstly development, procurement and maintenance and secondly the development of development facilities for economic activity in the context of carrying out activities both production, distribution and marketing. In addition, to support the management of the village economy, the formation of community economic enterprises can be carried out through the management of BUMDes as an asset owned by the village. **The second** is a developing village which has several characteristics including: development and development of all economic infrastructure starting from production, retribution, and marketing as well as trying to become a source of food and the economy of the village community. In terms of maintaining village infrastructure, developing villages try to procure facilities and infrastructure owned by villages so that they can provide services to village communities. To encourage this, strengthening the village economy is supported by BUMDes as access to the economy starting from providing capital, business management, distribution processes, and finally the marketing process, all of which are guided by the village government in order to help the economy and improve the quality and quantity of human resources. **The third** is an advanced village or an independent village which is characterized as a village that has good construction, development and maintenance of village infrastructure based on productivity figures focused on a superior product. The process of empowering and maintaining infrastructure is supported by excellent community service processes with the support of food security for rural communities. Management of village assets is supported by the productivity of BUMDes which strive to be able to carry out good

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production, retribution and marketing and is supported by the quality of the village community with the aim of being a livelihood and activating the economy of the surrounding community.

### 3. METHOD STUDY

This study uses qualitative analysis with descriptive research methods. Research is carried out to describe the exact nature of symptoms or signs and the subsequent development of the relationship between the research object and other social phenomena in data obtained by literature review, through official documents that record the conditions that occur in a research object, in the form of magazines, results. results of studies, theses, and survey results from various government agencies or not (Novriando & Purnomo, 2020).

The case study in this approach is adopted from Sugiyono's theory (2009) which states that documentation study is a qualitative method by analyzing documents created by the subject himself or other people. Documentation study itself is a method used by qualitative researchers to obtain a point of view or description of the object to be studied. The data collection technique in this research uses documentation techniques by collecting data using various documents or notes that record the state of the research concept in the unit of analysis which is used as the object. study. Data sources can come from documentation documents from the Village website or the results of previous studies. In terms of data analysis, the author uses narrative analysis to describe a phenomenon and dissect the innovations carried out by the Village in implementing IDM-based development.

Developing Village Indicators. In developing village indicators there are at least three dimensions described in the Ministry of Village Development Village Index Book. The following presents the three dimensions in the Developing Village Indicators.

No.	Dimensi	Variabel
1.	Ketahanan Sosial	Modal Sosial Kesehatan Pendidikan Pemukiman
2.	Ketahanan Ekologi	Kualitas lingkungan Potensi rawan bencana Tanggap bencana Keragaman produksi masyarakat desa Tersedianya Pusat perdagangan
3.	Ketahanan Ekonomi	Akses distribusi dan logistic Akses ke lembaga keuangan Lembaga Ekonomi Keterbukaan wilayah

Source: Ministry of Village Developing Village Index Book, 2023.

The Development Village Index (IDM) can be used as a reference in carrying out development integration, affirmation and synergy. The hope is that the condition of a prosperous, just and independent village community will be realized. The Developing Village Index (IDM) classifies villages into five statuses, namely: Independent Villages, Developed Villages, Developing Villages, Disadvantaged Villages and Very Disadvantaged Villages.



Figure 1. IDM diagram and Village Law  
(Source: IDM Diagram and Village Law, Online, 2023)

The object of this research is Bati-bati District where secondary data was taken from the website: <https://idm.kemendes.go.id/>. The data used is IDM data from Bati-bati District, Tanah Laut Regency for 2022. Bati-bati is a sub-district in Tala Regency, South Kalimantan Province, Indonesia. The distance from the provincial capital of South Kalimantan/Banjarmasin is around 41 km. Total population 42,290 people (2,015), area 234.75 km<sup>2</sup>. There are a total of 14 villages as follows: (1) Banyu Irang (2) Bati-Bati (3) Bentok Darat (4) Bentok Kampung (5) Benua Raya (6) Hooks (7) New Hooks (8) Liang Anggang (9) Nusa Indah (10) Padang (11) Pandahan (12) Sambangan (13) Ujung and (14) Ujung Baru.

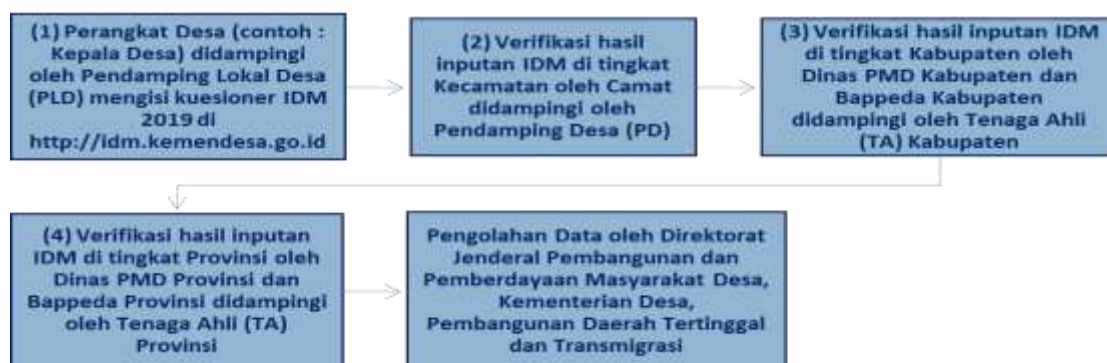


Figure 2. IDM Implementation Procedures  
(Source: <https://idm.kemendes.go.id/view/detil/6/faq>, 2023)

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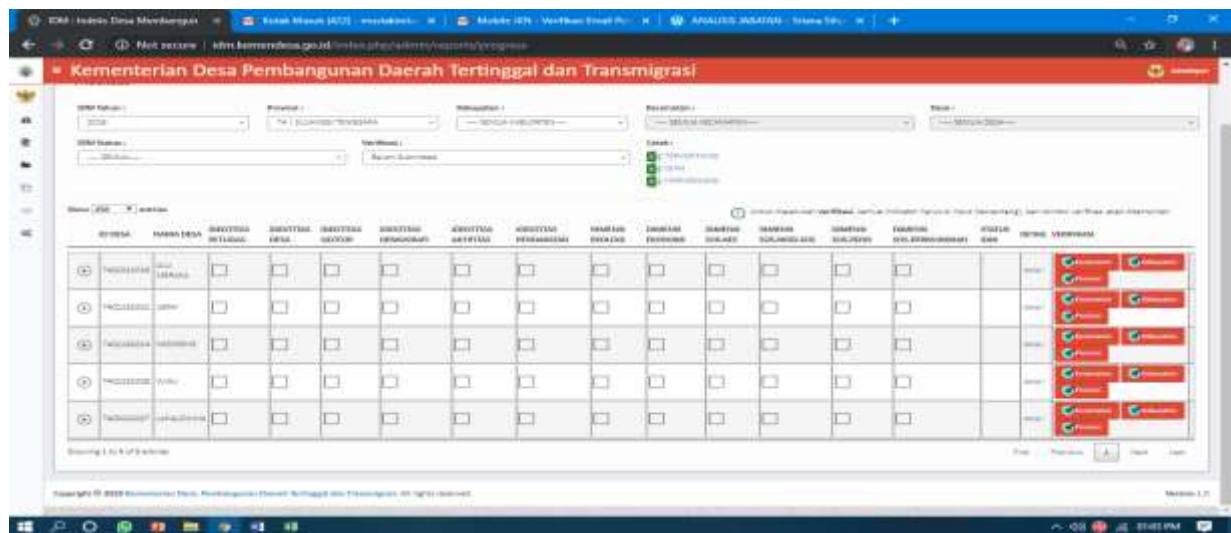


Figure 3. IKE, IKL, and IKS scores on the Village Status Dashboard Table  
(Source: <https://idm.kemendesa.go.id/view/detil/6/faq>, 2023)

### 4. RESULTS AND DISCUSSION

#### Results

**Measuring village development using the IDM (Developing Village Index) method in Bati-bati sub-district .** The Village Development Index (IDM) captures the development of Village independence based on the implementation of the Village Law with the support of Village Funds and Village Assistants. The Village Development Index (IDM) directs the appropriateness of interventions in policy by correlating appropriate development interventions from the Government in accordance with Community participation which correlates with the characteristics of the Village area. The IDM concept itself is then explained in the Ministry of Villages Regulation (Permendes) No. 2 of 2016 concerning village development patterns and maps. In article 3 it is stated that the IDM concept is integrated from several categories within it which include: Economic Resilience Index (IKE), Environmental Resilience Index (IKL), and Social Resilience Index (IKS). These three factors are then used as references in the process of measuring the strata of independence and progress of a village. The set of indicators developed in the Developing Village Index was developed based on the concept that towards an advanced and independent village a sustainable development framework is needed in which social, economic and ecological aspects become forces that complement each other and maintain the potential and ability of the village to prosper village life. Village community development and empowerment policies and activities must produce equity and justice, be based on and strengthen local and cultural values, and be environmentally friendly by managing the potential of natural resources properly and sustainably. In this context, social, economic and ecological resilience work as a dimension that strengthens the process and achievement of village community development and empowerment goals. Extracted from IDM data for Bati-bati District for 2022 as follows:

No.	Village Name	Social Resilience Index (IKS)	Economic Resilience Index (IKE)	Environmental Resilience Index (IKL)
1.	Greater Continent	0.8571	0.7167	0.8
2.	Bati- Bati	0.8457	0.7167	0.6
3.	End	0.8457	0.6	0.6667
4.	Liang Anggang	0.8229	0.5667	0.7333
5.	Village Bento	0.9029	0.7167	0.5333
6.	Land Bend	0.8514	0.6833	0.6667
7.	Banyu Irang	0.9029	0.6833	0.6667
8.	Nusa Indah	0.8	0.7333	0.6
9.	view	0.7486	0.6333	0.7333
10.	Padang	0.9486	0.8167	0.7333
11.	New Edge	0.8	0.6167	0.6667
12.	Sambangan	0.6686	0.6667	0.6667
13.	Hooks	0.8457	0.5167	0.8
14.	New Hooks	0.8286	0.7833	0.8667

Source: Bati-bati District IDM Analysis in 2022, abstracted 2023.

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Seeing the level of social, economic and ecological resilience with the IDM (Developing Village Index) method in Bati-Bati District. The Social Resilience Index consists of the Social Capital Dimensions (indicators of social solidarity, tolerance, sense of security, social welfare); Health Dimension (indicators of health services, community empowerment, and health insurance); Education Dimension (indicators of access to primary and secondary education, access to non-formal education and access to knowledge); and the Settlement Dimension (indicators of access to clean water, access to sanitation, access to electricity, and access to information and communication). The Social Dimension is equipped with data on the health section which consists of data on the availability of health facilities, hospitals, maternity hospitals, inpatient health centers, non-inpatient health centers, auxiliary health centers, maternity homes, polyclinics/medical centers, doctors' offices, midwives' practices, dispensaries, availability of midwives, availability of medical workers, availability of other health workers, access to poskesdes/polindes and posyandu, BPJS/JKN/KIS membership level, degree of health and malnutrition, target of the first 1000 days of life (HPK), measurement growth mat for children aged 0-23 months, and a comprehensive package of stunting prevention services for 1,000 HPK convergence. In the education section, it is equipped with data related to access to primary and secondary education, education level data, access to non-formal education aged 3-5 years, and access to knowledge, social capital, citizen security, social welfare. In the settlement section, it is equipped with data related to access to clean water and drinking water, access to sanitation, access to electricity, and access to information & communication. From the IKS table above it can be seen that in 14 villages above 0.5 means good with an average of 0.8334. The Economic Resilience Index consists of Economic Dimensions (indicators of diversity in rural community production, availability of trade service centers, distribution/logistics access, access to financial and credit institutions, economic institutions, and regional openness). The Economic Dimension is equipped with data related to the diversity of village community production, access to trade centers, access to distribution/logistics, access to financial institutions, availability of economic institutions, and regional openness. From the IKE table of 14 villages, the average is 0.675 above 0.5 which means moderate or good. The Environmental/Ecological Resilience Index consists of Ecological Dimensions (indicators of environmental quality and potential for disaster vulnerability and disaster response). The Ecology Dimension is equipped with data related to environmental conditions and potential disasters. From the IKL table of 14 villages, the average is 0.695 above 0.5 which means moderate or good.

Looking at the status of villages (Independent Villages, Advanced Villages, Developing Villages, Disadvantaged Villages and Very Disadvantaged Villages using the IDM (Developing Village Index) method in Bati-Bati District. In the context of village typology, the Developing Village Index classifies villages into five (5) statuses, namely: "(i) Very Disadvantaged Villages; (ii) Disadvantaged Villages; (iii) Developing Villages; (iv) Developed Villages; and (v) Independent Villages". From these five classifications, village statistics now have several divisions that are used as an indicator or village parameter. The typology for dividing the Developing Village Index (IDM) can be divided into several things such as: "(1) very underdeveloped villages: < 0.491; (2) underdeveloped villages: > 0.491 and < 0.599; (3) developing villages: > 0.599 and < 0.707; (4) developed villages: > 0.707 and < 0.815; and (5) independent villages: > 0.815" (Suroso, 2019). Seen from the IDM Analysis Table as follows:

No.	VILLAGE NAME	IKS	IKE	IKL	IDM VALUE 2022	IDM STATUS 2022
1.	Greater Continent	0.8571	0.7167	0.8000	0.7913	PROCEED
2.	Bati- Bati	0.8457	0.7167	0.6000	0.7208	PROCEED
3.	End	0.8457	0.6000	0.6667	0.7041	DEVELOP
4.	Liang Anggang	0.8229	0.5667	0.7333	0.7076	PROCEED
5.	Village Bento	0.9029	0.7167	0.5333	0.7176	PROCEED
6.	Land Bend	0.8514	0.6833	0.6667	0.7338	PROCEED
7.	Banyu Irang	0.9029	0.6833	0.6667	0.7510	PROCEED
8.	Nusa Indah	0.8000	0.7333	0.6000	0.7111	PROCEED
9.	view	0.7486	0.6333	0.7333	0.7051	PROCEED
10.	Padang	0.9486	0.8167	0.7333	0.8329	INDEPENDENT
11.	New Edge	0.8000	0.6167	0.6667	0.6944	DEVELOP
12.	Connection	0.6686	0.6667	0.6667	0.6673	DEVELOP
13.	hooks	0.8457	0.5167	0.8000	0.7208	PROCEED
14.	New Hooks	0.8286	0.7833	0.8667	0.8262	INDEPENDENT

Source: IDM Analysis of Bati-bati District TA. 2022, abstracted 2023.

## DISCUSSION

Support for IDM research studies with authors and titles related to IDM as follows: **Setyobakti, MH (2017)** with the title Identification of village problems and potential based on the Village Development Index (IDM) in Gondowangi Village, Wagir

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District, Malang Regency, **Muhtarom, M., Nurhadi Kusuma, MPI, & Eri Purwanti, M. (2018)** with the title Analysis of the Development Village Index to Know the Development Pattern of Village Development in Gadingrejo District, Pringsewu Regency, **Netra Ekawati, Asdi Agustar, Devi Analia (2022)** with the title Use of Village Funds and Its Implications for the Index Developing Villages (IDM), **Salmah, Fredi Andria, Amelia Rahmi (2022)** with the title Village Clusterization Through IDM as a Basic Foundation for Village Development in Bogor Regency, **K. Intan Dwi Fajar, R Rijanta, Andri Kurniawan (2019)** with the title Exploration of Development Variables Sustainable Development Village Index for Java Island, **Ari Kristin Prasetyoningrum (2018)** with the title Analysis of the Influence of the Human Development Index (HDI), Economic Growth, and Unemployment on Poverty in Indonesia, **Ade Irma Seska Arina, Vecky Masinambow, Een N. Walewangko (2021)** with the title The Influence of Village Funds and Allocation of Village Funds on the Village Development Index (IDM) in Southeast Minahasa Regency, **Agus Nyoman Astika (2021)** with the title Evaluation of Village Development Based on the Village Development Index (IDM), **Netra Ekawati, Asdi Agustar, Devi Analia (2022)** with the title Use of Village Funds and Its Implications for the Developing Village Index (IDM) and **Eka Setyowati (2019)** with the title Village Governance on Differences in the Developing Village Index (IDM): Study of Three Villages in Malang Regency. Concluding that IDM is a tool that is able to measure village success with the Social Resilience Index (IKS), Economic Resilience Index (IKE) and Environmental/Ecological Resilience Index (IKL). From the results of previous and future research, we will continue to improve and add to the questionnaire with 600 question items representing IKS, IKE and IKL for 2022 data.

### 5. CONCLUSION

1. Measuring village development using the IDM (Developing Village Index) method in the Bati-bati sub-district. The Village Development Index (IDM) captures the development of Village independence based on the implementation of the Village Law with the support of Village Funds and Village Assistants. The Village Development Index (IDM) directs the appropriateness of interventions in policy by correlating appropriate development interventions from the Government in accordance with Community participation which correlates with the characteristics of the Village area. The IDM concept itself is then explained in the Ministry of Village Regulation (Permendes) No. 2 of 2016 concerning patterns and maps of village development development. In article 3 it is stated that the IDM concept is integrated from several categories within it which include: Economic Resilience Index (IKE), Environmental Resilience Index (IKL) and Social Resilience Index (IKS).
2. Seeing the level of social, economic and ecological resilience with the IDM (Developing Village Index) method in the Bati-Bati District. From the IKS table above it can be seen that in 14 villages above 0.5 means good with an average of 0.8334. Table IKE of 14 villages average 0.675 above 0.5 means moderate or good. And the IKL table from 14 villages averages 0.695 above 0.5 which means moderate or good.
3. Looking at the status of villages (Independent Villages, Advanced Villages, Developing Villages, Disadvantaged Villages and Very Disadvantaged Villages) using the IDM (Developing Village Index) method in Bati-Bati District. In the context of village typology, the Developing Village Index classifies villages into five (5) statuses, namely: "(i) Very Disadvantaged Villages; (ii) Disadvantaged Villages; (iii) Developing Villages; (iv) Developed Villages; and (v) Independent Villages". From these five classifications, village statistics now have several divisions that are used as an indicator or village parameter. The typology for dividing the Developing Village Index (IDM) can be divided into several things such as: "(1) very underdeveloped villages: < 0.491; (2) underdeveloped villages: > 0.491 and < 0.599; (3) developing villages: > 0.599 and < 0.707; (4) developed villages: > 0.707 and < 0.815; and (5) independent villages: > 0.815." Benua Raya village has developed village status, Bati-bati has developed village status, Ujung has developed village status, Liang Anggang developed village status, Bentok Kampung developed village status, Bentok Darat developed village status, Banyu Irang developed village status, Nusa Indah developed village status, Pandahan developed village status, Padang independent village status, Ujung Baru developed village status, Sambangan developed village status, Kait -hooks with advanced village status and New Hooks with independent village status.
4. In the future, it is recommended that this research be continued by comparing it with IDM 2023 data and analysis, it will show an increase in the number and status of the villages.

### REFERENCES

- 1) Ade Irma Seska Arina, Vecky Masinambow, Een N. Walewangko (2021). The Effect of Village Funds and Village Fund Allocation on the Development Village Index in Southeast Minahasa Regency.
- 2) Agus Nyoman Astika (2021). Evaluation of Village Development Based on the Developing Village Index.
- 3) Ari Kristin Prasetyoningrum (2018). Analysis of the Influence of the Human Development Index (IPM), Economic Growth, and Unemployment on Poverty in Indonesia.
- 4) Chartady, R. (2023). Index Scale of Total Quality Management Implementation on the Performance of MSMEs Producers of GRC. *Quality Festival 2023*.



## Village Development Study Based on the Developing Village Index in Bati-Bati District, Tanah Laut Regency

- 5) Eka Setyowati (2019). Village Governance on Differences in Developing Village Index (IDM): Study of Three Villages in Malang Regency.
- 6) Fadilurrahman, M., Ramadhani, R., Kurniawan, T., Misnasanti, M., & Shaddiq, S. (2021). Systematic Literature Review of Disruption Era in Indonesia: The Resistance of Industrial Revolution 4.0. *Journal of Robotics and Control (JRC)*, 2(1), 51-59.
- 7) K. Intan Dwi Fajar, R Rijanta, Andri Kurniawan (2019). Exploration of Sustainable Development Variables for the Developing Village Index of Java Island.
- 8) Muhtarom, M., Nurhadi Kusuma, MPI, & Eri Purwanti, M. (2018)., Analysis of the Development Village Index to Understand Village Development Development Patterns in Gadingrejo District, Pringsewu Regency.
- 9) Netra Ekawati, Asdi Agustar, Devi Analia (2022). The Use of Village Funds and Their Implications for the Developing Village Index (IDM).
- 10) Netra Ekawati, Asdi Agustar, Devi Analia (2022). The Use of Village Funds and Their Implications for the Development Village Index (IDM).
- 11) Ramadhani, R., Suswanta, S., & Shaddiq, S. (2021). E-marketing of Village Tourism Development Strategy (Case Study in the Tourist Village Puncak Sosok). *Journal of Robotics and Control (JRC)*, 2(2), 72-77.
- 12) Salmah, Fredi Andria, Amelia Rahmi (2022). Village Clusterization Through IDM as a Basic Foundation for Village Development in Bogor Regency.
- 13) Satriadi, T. A., & Shaddiq, S. (2023). Analysis of Customer Service Quality Management in Implementation of TSM Kodawari at TAM Workshop in Society 5.0. *Quality Festival 52023*.
- 14) Setyobakti, MH (2017). Identification of village problems and potential based on the Development Village Index (IDM) in Gondowangi Village, Wagir District, Malang Regency.
- 15) Shaddiq, S., Haryono, S., Muafi, M., & Isfianadewi, D. (2021). Antecedents and Consequences of Cyberloafing in Service Provider Industries: Industrial Revolution 4.0 and Society 5.0. *The Journal of Asian Finance, Economics and Business*, 8(1), 157-167.



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## Implementation of Character Education Based on the Values of Pope John XXIII



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**ABSTRACT:** This research aims to analyse the implementation of character education based on the values of Pope John XXIII (Truth, love, freedom, and justice) at YPPK Yoanes XXIII High School, Merauke, South Papua Province. Apart from that, to analyse the supporting and influencing factors and their impact on strengthening the profile of Pancasila students. This research uses a qualitative descriptive method with a case study design. The data sources are school principals, supervisors, educators, and students. Data collection techniques through in-depth interviews, participant observation, documentation, and focused group discussions. Researchers as key instruments are supported by several guidelines. Data validity techniques use data credibility, namely extended observation, triangulation, and peer discussion. The results of the research show that YPPK Yoanes XXIII High School, Merauke, South Papua Province has implemented character education based on the values of Pope John XXIII: (1) The value of Truth is implemented by practicing honesty, justice, loyalty and humility; (2) The value of Love is implemented by mutual respect, appreciation, cooperation, giving, solidarity, upholding the rights of others, accepting differences; (3) The value of freedom/independence is implemented by obeying school rules, learning interactions, being responsible, accessing learning facilities, religious freedom. (4) The value of Justice is implemented by enforcing rules, financing, approaches to students, learning processes, class management, extracurriculars, and teacher rights; (5) Supporting factors for implementing the character values of Pope John XXIII include YPPK/church commitment, educator competence, school principal leadership, parent and community support. Meanwhile, inhibiting factors include the negative influence of information and communication technology and less conducive family conditions; (6) The main impact of implementing the character values of Pope John XXIII is encouraging and supporting the government and society in policies to strengthen the profile of Pancasila students. There is a synergy of character values according to John XXIII with the values of the Pancasila student profile in forming the character of students who have: deep faith in God; love of peace and brotherly love; democratic, independent, rational and professional culture; equal material and spiritual prosperity; identity, justice, civility, morals and ethics.

**KEYWORDS:** Implementation, education, character, values, Pope John XXIII

### I. INTRODUCTION

Law Number 20 of 2003 Article 3 states that national education's role is to develop abilities and shape the character and civilization of a dignified nation to educate the life of the nation, aiming to develop the potential of students to become human beings who believe and are devoted to God Almighty, have good morals. noble, healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen. Efforts to realize these educational ideals are not an easy job, but they are also not something that cannot be prepared or even shaped. The main cause of the difficulty of forming a quality human person lies in the complexity of the human person himself. Humans are complex individuals with various strengths and weaknesses. With his potential, he can develop himself into an ideal person, but with his shortcomings and limitations, humans can fall into poor quality life situations (Sihotang, 2018). The mysteriousness of humans is concretely revealed in everyday life and various human problems.

In this era, humanitarian problems are increasingly numerous and complex. One thing that stands out is the negative impact of science and technology. Science and technology present themselves in a dual way, namely providing solutions for human life but on the other hand, contributing to human problems. One of Husserl's students Jan Patocka (1907-1977) said that science and technology formed a new civilization in human life. The civilization in question is a condition where humans actualize themselves to get what they want instantly and ignore their internal dimensions which should be the guarantee of their authentic existence (Wibowo, 2017).

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The instrumental function of social media, which is expected to be able to bring those who are far away closer and bring those close together, creates distance and even sharpens hostility. Social media seems to act as an arena for mutual attacks and wars of opinion. Finally, humans are divided based on the similarity of opinion, the most correct is our group, while those with different opinions are the opponents. In increasingly isolated conditions, people are increasingly turning a blind eye to one another so that an intolerant climate is growing and cannot be stopped (Sindhunata, 2021).

Pope John XXIII said that science and technology must be used to develop human civilization, not to destroy it. Of course, the presence of science and technology is an extraordinary gift for the development of human life. However, if this gift is misused, the impact can destroy human life. Faced with this rapid development, moral values are urgently needed to fill the human soul. Thus, it is not technology that directs humans but it is humans who direct technological developments for the sake of their true self-growth (Hardawiryana, 2011).

The role of information and communication technology is very pronounced in the world of education. Education is directed at the basis of information technology. But the negative feature is that the human mind is wired to think technically. Students are like empty hard disks or memory cards that must be filled with several technical knowledge either through the learning system at school or various courses and tutoring outside of school hours. This method is overshadowed by the supposition that the sooner students master various kinds of knowledge, the faster they are smart and able to catch up with Indonesia from other nations. The heavy pressure of the curriculum creates frustration in students. Symptoms appear when children refuse to go to school, are depressed, sensitive, emotional, spend time playing games, feel inferior, and behave at high risk (Wibowo, 2017).

Problems emerge in various dimensions of human life, from the simple to the most complex, such as the rise in fights between pupils and students, acts of violence that occur both on the streets and in schools, dishonest behavior that is reflected in acts of corruption, use of positions, a culture of cheating, personal immaturity as reflected in drug abuse, deviant sexual behavior among teenagers, and the spread of fake news (Kadarmanta, 2010).

Some time ago, attitudes and behaviours in society emerged that was intolerant of all forms of differences, whether religion, customs, or even differences in views. There were wars between ethnic groups and countries that claimed thousands of lives, social inequality, destruction of public facilities, and cases of employer violence against workers. Among teenagers, the problem of increasing promiscuity, increasing rates of violence against children and teenagers, crimes against friends, theft, pornography, and destruction of other people's belongings is emerging (Bertens, 2004).

At present, what is becoming an issue and national news both through the media of television, various internet network applications, and print media, is the problem of various radicalism ideologies that have penetrated schools. Religious-based ideologies have a big influence on the thinking of the younger generation and even society as a whole. Certain individuals are dreaming of destroying the Unitary State of the Republic of Indonesia (NKRI) by planting seeds of disunity in the field of education. If radical ideas are instilled in students that destroy unity and peace, then the great goal of national education, namely creating a young generation of morality and morality, will be difficult to achieve. This situation deserves attention from the government, society, parents, and even all parties involved in the world of education.

The various social inequalities that occur both in the educational environment and in the community environment as described above have made the public uneasy. Educational institutions are also under scrutiny. The world of education as a forum for the formation of human character and morals is considered by society to have failed in carrying out its duties. Awareness of this failure is homework for all components of education, both government, community, schools, and families to be completed immediately (Kristiyanto, 2013).

Responding to this emergency, the government through the Ministry of Education, Culture, Research, and Technology has launched a new curriculum known as the Merdeka Curriculum. The concept of independent learning begins in the mindset of teachers before they transform their knowledge to students. Learning in independent learning provides flexibility and freedom for teachers in designing contextual and meaningful learning by the standards of the Pancasila student profile, namely, faith, devotion to God Almighty and noble character, cooperation, global diversity, critical reasoning and, independence (Kurniasih, 2022).

Long before that, Ki Hadjar Dewantara, the Father of Indonesian Education, stated firmly that independence was the goal of education as well as an educational paradigm that needed to be understood by all stakeholders. The most important thing about freedom of learning taught by Ki Hadjar Dewantara is the ability to "live with one's strength, towards order, peace and safety and happiness, based on the decency of human life". This meaning is not merely freedom but also the ability, and empowerment, to achieve happiness that can be felt collectively. (Kurniasih, 2022). By being free to learn, individuals are taught to be able to make wise decisions and be able to make decisions and actions that bring happiness and safety to themselves and other people around them. Not only that, the independence referred to in education contains three consequences, namely

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standing alone, not depending on other people, and being able to regulate oneself. This means that independence and efforts to always liberate oneself are goals to be achieved through the education process (Kurniasih, 2022).

The independent learning philosophy has a close relationship with the implementation of Pancasila values that have been formulated in Strengthening the Pancasila Student Profile. The Pancasila Student Profile is one of the efforts to improve the quality of education in Indonesia which emphasizes character building. In the current era of technological advancement of globalization, the role of value and character education is urgently needed to provide a balance between technological development and human development. Strengthening the profile of Pancasila students focuses on cultivating character and abilities in everyday life instilled in individual students through school culture, intra-curricular and extracurricular learning, and projects to strengthen Pancasila student profiles as well as work culture. The Pancasila student profile was created as an answer to one big question, about what kind of competencies the Indonesian education system wants to produce. These competencies include being competent, having character as well as behaving according to Pancasila values (Syaefulloh, 2022).

Ir. Soekarno once said There is no nation-building without character-building - it will not be possible to build a country if character education is not developed. Ir. Soekarno reminded the importance of building national character because the Indonesian nation is very heterogeneous and diverse (Masrukhin, 2013). Education not only plays a role in developing humans from a cognitive perspective but also character (manners) as a fundamental element. Most people think that success is only measured using knowledge/memorization parameters alone and tend to be apathetic towards matters related to character values themselves.

By focusing attention on character education, it is not intended to exclude or contradict the dimensions of cognitive intelligence. It becomes unhealthy when character is opposed to knowledge, as if science and technology conflict with morals and lead to character deviation. Of course, morality and cognitive knowledge need to be integrated because morality is the attitude of a person to act as a whole person with the responsibility of the mind and the development of feelings that are integrated (Suparno, 2017). The implementation of character education in schools is an attempt to overcome social inequalities by balancing academic intelligence with moral intelligence.

Based on the results of an exploratory study, YPPK Yoanes XXIII High School is known as the first high school in Merauke Regency which was founded in 1963. This school implements character education based on the values of Pope John XXIII (1881-1963). There are four-character values taken from the character as role models, namely: Truth (Veritas), Love (Caritas), Freedom/Independence (Libertas), and Justice (Justitia) (Hardawiryana, 2011). The values of the character of Pope John XXIII who has a religious background are closely related to the values of the profile of Pancasila students with an Indonesian national background, namely: Faith, fear of God Almighty and noble character, global diversity, cooperation, independence, critical reasoning, and creative.

The implementation of character education based on the values of Pope John XXIII is a form of strengthening the values of the Pancasila student profile. The relationship of cooperation and collaboration between these values indicates that the values upheld in the religious field are in line with the values of Pancasila as the basis of the Unitary State of the Republic of Indonesia. The correlation between values implemented in educational units produces a positive synthesis of newness in students, both in academic knowledge and personality, which has a national and global impact. For this reason, one of the aims of this research is to explore the impact of implementing the character values of Pope John XXIII on strengthening the profile of the Pancasila community.

Apart from that, the issue of the declining quality of Catholic schools gave rise to a deep motivation to conduct this research. Some Catholic schools do not have the distinctive values that many parents, including Catholic families, look for. Some have lost Catholic values that were previously highly emphasized, such as the value of love, so that school administration and the school atmosphere lack an atmosphere of love and attention. In this way, Catholic schools lose their identity and ideals (Suparno, 2017).

The identity and charism of Catholic schools are formulated as places of integral education of the human person through a clear educational project in which Jesus Christ is the basis. Therefore, the basic task of Catholic schools is to design a synthesis of faith and culture as well as a synthesis of faith and life. Scripture makes it clear that all of Christianity is about relationship or relationships. The essence and substance of that relationship or relationship is love (Suparno, 2017). Jesus taught the essence of that relationship: Love your God above all else and love your neighbor as yourself (Gospel of Mark 12:28-32).

The relationship of love in a Catholic school brings students into communion and brotherhood with one another. Catholic schools are places where young people come together and explore life in a unique setting to embrace the spiritual part of reality as a path to fully understanding humanity in the world. Relationships are at the heart of what a Catholic school is all about. Every human being is called to establish a loving relationship with himself, God, and others, and is encouraged to see the interdependence in all creation (Gennadios, 2020).

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The Congregation for Catholic Education calls on Catholic educational institutions to be present by providing their unique contributions. Catholic schools are called to bear a faithful witness, through their pedagogy that is inspired by the Gospel. Schools must exist as educational communities, where all differences live together in harmony. Thus, if the character values of Pope John XXIII are seen as authentic characters of YPPK Yonaes XXIII Merauke High School, then efforts to evaluate and improve John XXIII High School must refer to his identity (Kristiyanto, 2013).

A description of the character education implementation program at YPPK Yoanes XXIII Merauke High School, stated that the Christian values that are prioritized are: truth, love, justice, freedom, democracy, discipline, honesty, transparency, accountability, and solidarity. Furthermore, the pattern of service was also formulated as follows: Imitating the work and love of Jesus Christ as Teacher and the apostles as disciples based on the love and spirituality of Pope John XXIII.

The spirit of life is manifested in the values that are lived and used as life guidelines. The same thing is also expressed in the formulation of school mission number five as follows: Increasing the ability to be sensitive and responsive in responding to current developments and building communication across religions, cultures and caring for the weak, poor, and suffering by the life spirit of Pope John XXIII. It is clear that Pope John XXIII's spirit of life, which is manifested in the appreciation of the values of truth, love, justice and freedom, is a priority program in the implementation of character education (YPPK Yoanes XXIII Merauke High School Profile, 2018).

Pope John XXIII's character education model does not only refer to students as development subjects but also shapes the character of leaders, teachers, employees, and all parties involved in efforts to develop educational units. Pope John XXIII's papal motto of *Obedientia et Pax* (obedience and peace) contains the Christian virtues that he characterized throughout his life. The basic values of life that Pope John XXIII lived and fought for to achieve a peaceful life were: Truth (*Veritas*), Love (*Caritas*), Freedom (*Libertas*), and Justice (*Justitia*) (Curran, 2004).

Regarding these four values, at the end of his writing in the Encyclical *Pacem in Terris* (World Peace), Pope John XXIII said that education must create an atmosphere of peace within students and then produce human individuals who love and create peace in society. To be able to realize this peace, educational units must internalize in students' noble values that direct students to a peace-loving mentality (Hardawiryana, 2011).

Based on the results of searching several scientific articles, researchers found several research articles related to the implementation of character education both in state schools and in private schools, as reported by Maunah, (2015); Kardinus, et al. (2022); & Murlani, (2013) that character education has been implemented in schools through various internal and external activities that are integrated into the curriculum and school programs and can even build students' social awareness attitudes such as attitudes of tolerance, care, discipline, honesty, greeting each other, and solidarity. as well as the habit of religious moderation, through structured and unstructured activities, it was even found that the contents of the document "Educating to Fraternal Humanism" are very relevant and developing in schools, especially in the current digital era.

The results of the study above provide information that in general the study of the implementation of character education has become a serious concern through various studies because the implementation of education is not limited to the formation of academic abilities alone, but more than that, namely comprehensive competencies that form spiritual intelligence, attitudes, body, and feelings. and intention. This is by Law Number 20 of 2003, Article 33, that national education aims to improve individuals (students) who have faith and devotion to God, have noble morals and character, are physically and spiritually healthy, have knowledge, are independent, creative, responsible, democratic and love the country, but based on the results of other studies, it gives a different picture, namely that there are still several more specialized education units in YPPK private schools that have not been optimal in implementing education in their schools, such as the results of research by Suharmini, (2017), among others. concluded that there were still 2% of students who said that teachers never instilled character values. Prabandari (2020) concluded that character education has not been implemented consistently, even the results of the study by Pitriyani, et al. (2020). that Catholic Religious teachers have implemented the assessment of spiritual attitudes and social attitudes even though there are still several shortcomings found in the subjective and monotonous assessment techniques and are not optimal, without any journals or observation sheets, self-assessment sheets and assessment sheets between friends because the teachers do not understand.

Based on the phenomenon and some of the results of previous empirical studies, it shows that character education, on the one hand, has been implemented by several educational units with a variety of findings, some of which are by the Regulation of the Minister of Education and Culture Number 20 of 2018 Article 6 says that the implementation of PPK optimizes the partnership function education tri center implemented with a class-based approach; school culture; and society, but there are still several educational units that have not been maximal in implementing character education, and what distinguishes previous research from this research is the study of character values based on Pope John XXIII. Several indicators of character values that are implemented in schools are relatively the same and universal as this study but have not focused on following up on the

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character values put forward by Catholic religious figures, namely Pope John XXIII. This research is intended to follow up on and even complement the results of previous studies regarding character values that need to be implemented in every education unit in general and education units organized by YPPK in particular, by emphasizing the philosophy of authentic thinking of Pope John XXIII namely the values of truth, love, freedom /independence, and justice (Hardawiryana, 1999: Linguists) implemented at YPPK Yoanes XXIII High School, Merauke Regency, South Papua Province. These four indicators are believed to be able to encourage and support government and community efforts regarding strengthening the profile of Pancasila students.

### II. METHODS

This research uses a qualitative descriptive approach to case study design, namely, research carried out to interpret objects according to what is carried out on the specified object. To obtain several data and/or information regarding the six indicators in this research, researchers conducted in-depth interviews with various informants, namely, school principals, supervisors, teachers (head of school for curriculum, student affairs, public relations, infrastructure, guidance/counseling teachers), and students. Apart from that, conducting participatory observation, checking documentation, and FGD. Researchers as the main instrument are supported by interview guides, observations, FGDs, and documentation checklists. To obtain data that meets the requirements of research, a data validity test is carried out using data credibility techniques, namely extending the observation time, triangulation, and peer discussion. Data analysis uses the Miles and Huberman interactive analysis model which consists of three activity streams, namely: (1) data reduction; (2) data presentation (data display); and (3) drawing conclusions and verification. These three methods are interrelated and constitute the flow of data analysis activities by drawing meaning (Sugiyono, 2017).

### III. RESULTS

Based on the results of data analysis, the findings of this research generally show that YPPK Yoanes XXIII High School, Merauke, South Papua Province has implemented character education based on the values of Pope John XXIII which are manifested in the following various activities. First, the Truth Value is implemented by: (1) Students are taught not to cheat during exams, which is realized in the form of exam rules. (2) Dare to admit mistakes or violations that have been committed and promise not to repeat disgraceful actions. (3) Educators are honest and fair in providing objective assessments according to students' abilities. (3) The faithfulness and perseverance of educators and educational staff in carrying out their duties become an example and role model, and (4) A transparent and humble management system even becomes an example for the school community.

Second, the value of love is manifested in various activities, namely, (1) the habit of smiling, greeting, and greeting. (2) Faith-deepening activities (recollection). (3) The enthusiasm and motivation for the work of educators and education staff. (4) Literacy activities as a love of science. (5) Various prayer routines. (6) implementing a learning approach with a spirit of love that educates, and (7) The principal's leadership is patterned on love.

Third, the value of freedom/independence is manifested in various activities, namely, (1) Enforcing and implementing school rules. (2) Free/independent learning process. (3) Appreciation of the freedom/independence of teaching staff as role models for students. (4) Using educational facilities and infrastructure effectively and efficiently for the smooth running and achievement of learning objectives.

Fourth, the value of justice is realized in various activities, namely, (1) Applying the rules fairly. (2) Pay school fees regularly. (3) Fair treatment of students with special needs. (4) Application of justice in the learning process. (5) The principle of justice in the realm of class. (6) Extracurricular activities, and (7) Justice relating to teacher rights.

Fifth, the supporting factors for implementing the values of Pope John XXIII include the church's attention to schools, the role of foundations, the competence of human resources (teachers), management of infrastructure and financing, leadership of school principals, and support from parents and the community. Inhibiting factors consist of the negative influence of information and communication technology, and less conducive family conditions.

Sixth, the impact of implementing the values of Pope John XXIII on strengthening the profile of Pancasila students, namely encouraging and supporting the government and society in IKM policies. There is collaboration between the values of John XXIII and the values of the Pancasila student profile in forming students who have: deep faith in God; love of peace and brotherly love; democratic, independent, rational, and professional culture; equal material and spiritual prosperity; identity, justice, civility, morals and ethics.

### IV. DISCUSSION

Overall, the results of the study show that YPPK Yoanes XXIII Merauke High School has implemented the character values of Pope John XXIII. First, the Truth Value is implemented by: (1) Students are taught not to cheat during exams which is manifested

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in the form of exam rules. (2) Dare to admit mistakes or violations that have been committed and promise not to repeat acts that are not commendable. (3) Educators are honest and fair in providing objective assessments according to students' abilities. (3) The loyalty of teachers and educational staff in carrying out their duties is an example and role model for students in their loyalty and diligence in carrying out their obligations, namely being faithful to attend school and diligent in studying. (4) The principal's humility and transparent school management system is an example for the homeroom teacher in implementing humility management for students in the class.

The results of this study are in line with Saeful's study (2021) that, in life, being honest is an important thing that everyone should have. This attitude can be a benchmark for whether someone's attitude is good or not. The creation of the next generation of the nation who has an honest attitude is of course the dream of all Indonesian people, therefore every educational institution must not be negligent in making it happen. In addition, Mulyasa (2019) said that, for the success of education in schools, the important thing that must be considered is the figure of the teacher, namely a teacher who can be imitated and imitated, because the teacher is an important factor has a big influence, even determines the success or failure of students. Upholding the value of truth in the administration of the education system, each component of the school is expected to further build within itself the habit of thinking and acting properly and correctly in everyday life (Bonnot, 2004). As said by Lickona (Mulyasa, 2019) good character education must involve not only aspects of knowing the good, but also desiring the good or loving the good and acting the good, so that students realize, understand, feel, and can practice truth values completely and comprehensively.

Second, the value of love is manifested in various activities, namely, (1) the habit of smiling, and greeting. (2) Faith-deepening activities (recollection). (3) The enthusiasm and work motivation of teachers and education personnel. (4) Literacy activities as a love of science. (5) Various prayer routines. (6) Approach learning towards students with a spirit of love that educates. (7) The principal's leadership is patterned on love. The results of this research are in line with the results of Mulyasa's (2019) study that a safe, comfortable, and orderly school environment, combined with optimism and high hopes from all school residents, school health, and student-centered activities. activities) is a climate that can arouse lust, passion, and enthusiasm for learning.

As a school with Catholic characteristics, appreciation of the value of Love comes from an appreciation of faith in God as the source of true love. Therefore, various spiritual efforts are always made to strengthen the value of love are by holding faith and deepening activities for teachers and students (Bonnot, 2004). The same idea was also emphasized by Driyarkara (Suparno, 2002) that education aims to humanize humans. This means helping young people to become more highly cultured and highly valued human beings. Not only living as a "human" (eating and drinking) but as a human being who has morals, character, responsibility, and sociality.

Third, the Value of Freedom/Independence is manifested in various activities namely, (1) Upholding and implementing school rules. (2) A free/independent learning process. (3) The appreciation of the freedom/independence of the teaching staff as an example for students. (4) Use educational facilities and infrastructure freely for all school components effectively and efficiently for the smooth running and achievement of learning objectives. This is in line with the results of Koesoema's study (2018) that class-based character education approaches focus on the overall dynamics of teacher-student interaction in the classroom in the structure of a curriculum. The class is the main educational locus for educational praxis, namely the place where in the whole educational process there is interaction between teachers and students. In this interaction, there is a process of forming individual characters, especially for students. In addition, as a support for the achievement of character education. Werang (2015) said that learning facilities and infrastructure are some of the factors that also influence teacher considerations in choosing and using learning strategies.

Fourth, the value of justice is manifested in various activities, namely, (1) applying rules fairly. (2) Paying school fees. (3) Fair treatment of students with special needs. (4) Application of justice in the learning process. (5) The principle of justice in the classroom realm. (6) Extracurricular activities. (7) Justice relating to teacher rights. This fair policy is in line with what was said by Basrowi (2007) that, this is the application of the principle of justice in the administration of education, so that students who are intellectually and financially will receive adequate service. This principle also applies to taking a learning approach to students with special needs and students who are less prominent than other students intellectually. In addition, Mulyasa (2019) emphasized that teachers and mentors are required to be patient in dealing with students who are slow learners because their characteristics, traits, and behavior are always slow. Without the teacher's patience, students will become easily discouraged, especially if the assistance given does not immediately show results. More than that, teachers who are impatient and less painstaking will immediately leave the guidance task and leave their students stranded.

Fifth, in the implementation of the values of Pope John XXIII there are the following supporting and inhibiting factors. Supporting factors consist of the church's attention to the school, the role of the foundation, the competence of human resources (teachers), management of infrastructure and financing, governance and leadership of the school principal, parental

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support, and support from the community environment. Inhibiting factors consist of the negative influence of information and communication technology, less conducive family conditions, and being trapped in less educational relationships. The results of this research are in line with Susanto (2022) that the Diocesan Bishop has the right and obligation to issue provisions regarding the general organization of Catholic schools in his diocese. In addition, he emphasized that, among all members of the school community, teachers have a special responsibility for education. It is said by Ramdhani, (2014) that the educational environment has a major influence on character education. This means that the better the support from various parties in the school, the better the educational results, especially those related to the interests of many people, namely the growth of the nation's children who have the Pancasila character which is needed in the current era. The learning environment by providing concrete life testimony will make it easier for Catholic schools to realize their formative programs. Actually, in Catholic schools, the ministry of teachers is a gift/blessing and an ecclesiastical office. Susanto (2022) added that the first person responsible for education is the parents, who have the natural right and obligation to educate their children. They have the right to choose the means and institutions through which they can provide their children with a Catholic education.

About inhibiting factors, Ratnaya (2011) suggests several negative impacts of the development of information and communication technology: First, children spend more time watching TV than doing other things (such as studying and exercising). Second, children lose the ability to blend in with society and tend to be comfortable with online life. Third, crime on the internet. This crime knows no national and territorial boundaries, whenever and wherever it can appear. Fourth, the spread of computer viruses. Fifth, pornography, gambling, fraud, and display of violence. In connection with this negative influence, Hulukati (2015) says that the family environment plays the main responsibility for the physical and spiritual growth of their children, namely through the science of educating and guiding their sons and daughters. The success or failure of a child's education can be linked to the development of the attitude and personality of the parents as well as communication relationships and role models in the family.

Sixth, the collaboration between the values of Pope John XXIII and the values of the Pancasila student profile forms students who have: a deep faith in God; love of peace and brotherly love; democratic, independent, rational, and professional culture; equal material and spiritual prosperity; identity, justice, civility, morals, and ethics. The results of this research are in line with the results of A'yun's study (2022) that, the importance of the profile of Pancasila students, especially those "faithful, pious to God, and Noble Morals" is formed to be able to give students the ability to have character according to the first precepts of Pancasila. In line with this thought, Nabila (2022) argues that, with the formation of elements of global diversity, it is hoped that it will be able to create Indonesian students who can maintain noble culture, identity, and locality, but still have an open mind when interacting with other cultures to foster a sense of belonging to one another. respect and be able to form a new culture that does not conflict with the noble culture of the nation.

The value of global diversity above can be realized concretely in the value of cooperation. Based on the results of his study, Mulyatno (2022) said that cooperation is a spirit of living together to preserve brotherhood and harmony in Indonesian society. In addition, the values of Pope John XXIII shape students to become independent individuals. The results of Yusutria's study (2019) state that the formation of an independent character in students is based on a deep awareness within themselves to become human beings who are full of a sense of responsibility supported by habits that are ingrained in themselves, because of the role models they emulate from leaders, teachers, and peers. Deep awareness involves the dimension of the mind, namely the ability to reason critically. Confirming this thought, through the results of her research, Nuvitalia (2014) said that one of the aspects revealed in this scientific study is the element of reasoning, namely anticipating and finding solutions to problems. In line with this opinion, Fakhriyani (2016) in his research results shows that everyone has the potential to be creative, but what needs to be underlined is how to develop abilities that still have potential. Creativity is not an inborn ability, but an ability that can be learned and developed.

## V. CONCLUSIONS

Based on the results of previous research and discussions, it can be concluded that in general SMA YPPK Yoanes XXIII Merauke, South Papua province, has implemented character education based on the values of Pope John XXIII which is manifested in various activities, including:

a. The Truth Value is implemented by (1) Not cheating on the exam; (2) Dare to admit the mistakes that have been made and promise not to repeat disgraceful actions; (3) Educators are honest and fair in providing objective assessments to students; (4) The loyalty of teachers and education personnel in carrying out their duties as examples and role models for students; and (5) Humility and transparency of the school principal as a role model.

b. The value of Love is implemented by (1) the habit of smiling and greeting. (2) Faith-deepening activities (recollection). (3) The enthusiasm and work motivation of teachers and education personnel. (4) Literacy activities as a love of science. (5) Various



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prayer routines. (6) Approach learning towards students with a spirit of love that educates. (7) The principal's leadership is patterned on love.

c. The value of Freedom/Independence is implemented by (1) Enforcing and implementing school rules. (2) Free/independent learning process. (3) Appreciation of the freedom/independence of teaching staff as role models for students. (4) Using educational facilities and infrastructure effectively and efficiently for the smooth running and achievement of learning objectives.

d. The value of Justice is implemented by (1) Applying the rules fairly. (2) Paying school fees. (3) Fair treatment of students with special needs. (4) Application of justice in the learning process. (5) The principle of justice in the realm of class. (6) Extracurricular activities. (7) Justice relating to teacher rights.

e. Supporting factors for the implementation of Pope John XXIII's character values include YPPK/church commitment to educational competence, leadership of school principals, and support from parents and the community. Meanwhile, inhibiting factors include the negative influence of information and communication technology and less conducive family conditions.

f. The main impact of implementing Pope John XXIII's character values is to encourage and support the government and society in policies to strengthen the profile of Pancasila students. There is a synergy of character values according to John XXIII with the values of the Pancasila student profile in forming students who have: a deep faith in God; love of peace and brotherly love; democratic, independent, rational, and professional culture; equal material and spiritual prosperity; identity, justice, civility, morals, and ethics.

Based on the conclusions above, in the context of implementing character education and efforts to strengthen the profile of sustainable Pancasila students, it can be suggested, among others: (1) The school principal and teaching staff at SMA YPPK Yoanes XXIII Merauke, South Papua Province, need to revise the school's vision, mission and goals by emphasizing on the values of Truth, Love, Freedom/Independence, and Justice. (2) Deputy school principals in the curriculum section need to sharpen the education unit's internal curriculum by incorporating the values of Truth, Love, Freedom/Independence, and Justice. (3) School principals need to increase their understanding of the nature of character education for all school components. (4) YPPK Merauke needs to conduct outreach to all school components regarding the introduction of the figure of Pope John XXIII, the great charisma and character values he fought for, in collaboration with the Merauke Regency Education Office to carry out validation and official recognition of the status of Yoanes XXIII SMA YPPK as schools providing character education, reviewing the system for recruiting school principals, teachers and education staff with character, working closely with parents/guardians in assisting and strengthening children's character.

## REFERENCES

- 1) A'yun Qurroti. (2022). Penanaman Nilai Beriman Bertakwa kepada Tuhan Yang Maha Esa dan Berakhlak Mulia Profil Pelajar Pancasila Melalui Kegiatan Pembiasaan Siswa di MTs Al-Ma'arif 03 Singosari. *Tabyin: Jurnal Pendidikan Islam*, 4 (2): 59-60. <https://e-journal.stai-iu.ac.id/index.php/tabyin/article/view/194>
- 2) Basrowi. (2007). Dimensi Sosiologi Sekolah Berkeadilan Menurut Perspektif Masyarakat Pendidikan. *Jurnal Ekonomi dan Pendidikan*, 4 (1): 1-13. <https://journal.uny.ac.id/index.php/jep/article/view/614>
- 3) Bertens K. (2004). *Sketsa-sketsa Moral: 50 Esai Tentang Masalah Aktual*. Yogyakarta: Kanisius.
- 4) Bonnot Bob. (2004). *Pope John XXIII: Model and Mentor For Leaders*. New York: St. Pauls.
- 5) Curran Charles E. (2004). The Teaching and Methodology of Pacem in Terris. *Journal of Catholic Social Thought*, 2 (1): 17-34. <https://philpapers.org/rec/CURTTA>
- 6) Fakhriyani Diana Vidya. (2016). Pengembangan Kreativitas Anak Usia Dini. *Didaktika: Jurnal Pemikiran Penelitian Pendidikan dan Sains*, 4 (2): 193-199. <https://core.ac.uk/download/pdf/228983994.pdf>
- 7) Gennadios. (2020). Christ's Love, Peace, Justice, and Freedom Seen against the Challenges of the Modern World. *Journal: The Ecumenical Review*, 72 (2): 309-320. [https://www.researchgate.net/publication/340896603\\_Christ's\\_Love\\_Peace\\_Justice\\_and\\_Freedom\\_Seen\\_against\\_the\\_Challenges\\_of\\_the\\_Modern\\_World](https://www.researchgate.net/publication/340896603_Christ's_Love_Peace_Justice_and_Freedom_Seen_against_the_Challenges_of_the_Modern_World)
- 8) Hardawiryana. (2011). Kumpulan Dokumen Ajaran Sosial Gereja Tahun 1891-1991 dari Rerum Novarum sampai dengan Centesimus Annus. Jakarta: Departemen Dokumentasi dan Penerangan KWI.
- 9) Hulukati Wenny. (2015). Peran Lingkungan Keluarga Terhadap Perkembangan Anak. *Jurnal Musawa*, 7 (2): 265-282. <https://media.neliti.com/media/publications/114008-ID-peran-lingkungan-keluarga-terhadap-perke.pdf>
- 10) Kadamanta A. (2010). *Narkoba Pembunuh Karakter Bangsa*. Jakarta: PT Forum Media Utama.
- 11) Kardinus, W. N., Sa'dun, A. dan Ruspandi (2022) Implementasi Program Pendidikan Karakter Untuk Membangun Sikap Kepedulian Sosial. *Jurnal Penelitian dan Pendidikan IPS (JPPI)* 16 (1): 31-40, 2022

## Implementation of Character Education Based on the Values of Pope John XXIII

- 12) Koesoema A.D. (2018). *Pendidikan Karakter Berbasis Kelas*. Yogyakarta: Kanisius.
- 13) Kristiyanto Materius. (2013). Sekolah Katolik: Membangun Kader Muda Katolik. *Aggiornamento, Pembaharuan Hidup Gereja dalam Terang Konsili Vatikan II*. Yogyakarta: Kanisius.
- 14) Kurniasih Imas. (2022). *A-Z Merdeka Belajar + Kurikulum Merdeka*. Jawa Timur: Kata Pena.
- 15) Lembaga Alkitab Indonesia. (2019). *Alkitab Deuterokanonika*. Jakarta: Lembaga Alkitab Indonesia Anggota IKAPI.
- 16) Maunah, B. (2015). Implementasi Pendidikan karakter dalam Pembentukan Kepribadian Holistik Siswa. *Jurnal Pendidikan Karakter*. V (1): 90-101 file:///C:/Users/ZICOMS/Downloads/8615-21731-1-PB.pdf
- 17) Masrukhin Agus. (2013). Model Pembelajaran Character Building dan Implikasinya Terhadap Perilaku Mahasiswa. *Jurnal Humaniora*, 4 (2): 1229-1236. <https://media.neliti.com/media/publications/167243-ID-model-pembelajaran-character-building-da.pdf>
- 18) Mulyasa. (2019). *Manajemen Pendidikan Karakter*. Jakarta: Bumi Aksara.
- 19) Mulyatno, Yosafat. (2022). Praktik Bergotong-Royong dalam Hidup Bermasyarakat Sebagai Pengamalan Nilai-Nilai Pancasila. *Jurnal Kewarganegaraan*, 6 (2): 4624-4632. [http://repository.usd.ac.id/44128/1/8419\\_GOTONGROYONG%2BSBG%2BIMPLEMENTASI%2BPANCASILA.pdf](http://repository.usd.ac.id/44128/1/8419_GOTONGROYONG%2BSBG%2BIMPLEMENTASI%2BPANCASILA.pdf)
- 20) Murlani, (2013). Pendidikan karakter dalam Pembelajaran Agama Katolik di SMA Santo Bonaventura Medium. *JPAK JURNAL PENDIDIKAN AGAMA KATOLIK*. 9 (15): 49-80. file:///C:/Users/ZICOMS/Downloads/document%20(35).pdf
- 21) Nabila, Wulandari. (2022). Elemen Berkebhinekaan Global pada Buku Tematik Siswa Kelas IV Sekolah Dasar Tema Indahnya Keragaman di Negeriku. *Jurnal Cakrawala Pendas*, 8 (3): 788-796. <https://ejournal.unma.ac.id/index.php/cp/article/view/2607>
- 22) Nuvitalia Duwi. (2014). Elemen Bernalar: Implikasi Dan Akibat-Akibat Pada Indikator Mengantisipasi Serta Mencari Solusi Terhadap Masalah Melalui Metakognisi. *Jurnal Phenomenon*, 4 (2): 43-49. <https://journal.walisongo.ac.id/index.php/Phenomenon/article/view/102/83>
- 23) Peraturan Menteri Pendidikan dan Kebudayaan Nomor 20 Tahun 2018 tentang Penguatan Pendidikan Karakter pada Satuan Pendidikan
- 24) Pitriyani, A., G. Simon, D., Nikolaus, A. (2020). Implementasi Penilai Sikap Spiritual dan Sikap Sosial Pada Kurikulum 2013. *GAUDIUM VESTRUM: Jurnal Kateketik Pastora*. 1 (2): 56-67.
- 25) Prabandari, S. (2020). Impelementasi Pendidikan Karakter Di Sekolah Dasar. *JURNAL PENDIDIKAN dan KONSELING*. 2(1): 68-77.
- 26) Ratnaya I Gede. (2011). Dampak Negatif Perkembangan Teknologi Informatika dan Komunikasi dan Cara Antisipasinya. *JPTK, UNDIKSHA*, 8 (1): 17-28. <https://ejournal.undiksha.ac.id/index.php/JPTK/article/view/2890>
- 27) Ramdhani, M. A. (2014). Lingkungan Pendidikan dalam Implementasi Pendidikan Karakter. *Jurnal Pendidikan Universitas Garut*. 08 (01): 28-37.
- 28) Saeful Achmad. (2021). Implementasi Nilai Kejujuran dalam Pendidikan. *Jurnal Tarbawi*, 4 (2): 124-138. <https://stai-binamadani.e-journal.id/Tarbawi/article/view/260>
- 29) Sihotang Kasdin. (2018). *Filsafat Manusia: Jendela Menyingkap Humanisme*. Yogyakarta: Kanisius.
- 30) Sindhunata. (2021). *Dilema Usaha Manusia Rasional, Teori Kritis Sekolah Frankfurt Max Horkheimer dan Theodor W. Adorno*. Jakarta: PT. Gramedia.
- 31) Sugiyono. (2017). *Metode Penelitian Kualitatif: Untuk Penelitian yang bersifat eksploratif, interaktif dan konstruktif*. Bandung: Elfabeta.
- 32) Suparno. (2002). *Pendidikan Budi Pekerti di Sekolah, Suatu Tinjauan Umum*. Yogyakarta: Kanisius.
- 33) Suparno. (2017). *Lembaga Pendidikan Katolik: Dalam Konteks Indonesia*. Yogyakarta: Kanisius.
- 34) Susanto Thomas Eddy (penerjemah). (2022). Identitas Sekolah Katolik Untuk Budaya Dialog. Instruksi Kongregasi Untuk Pendidikan Katolik. Seri Dokumen Gerejawi No. 131.
- 35) Suharmini, H. J. W. (2017). Analisis Pelaksanaan Pendidikan karakter di SMA Negeri 3 Semarang (Studi pada Kelompok Mata Pelajaran IPS). *HISTORIKA*. 20 (1): 67-77
- 36) Syaefulloh dkk. (2022). Implementasi Habituasi Profil Pelajar Pancasila dan Eksistensinya bagi Mahasiswa. *Jurnal Kewarganegaraan*, 6 (1): 2141-2149. <https://journal.upy.ac.id/index.php/pkn/article/view/2944>
- 37) Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional.
- 38) Werang Basilius R. (2015). *Manajemen Pendidikan di Sekolah*. Yogyakarta: Media Akademi.
- 39) Wibowo A. Setyo. (2017). *Paideia: Filsafat Pendidikan-Politik Platon*. Yogyakarta: Kanisius.
- 40) Yusutria, Febriana. (2019). Aktualisasi Nilai-Nilai Kemandirian dalam Membentuk Karakter Mandiri Siswa. *Ta'dib: Jurnal Pendidikan Islam*, 8 (1): 577-582. <https://ejournal.unisba.ac.id/index.php/tadib/article/view/4575>
- 41) Hasil penelitian Ramdhani, (2014) mengatakan bahwa lingkungan pendidikan memberikan pengaruh besar dalam pendidikan karakter.

## Identification of Condition of Corn Plant Based on Leaf Image Features Using Gray Level Co-Occurrence Matrix and Backpropagation Neural Network



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**ABSTRACT:** This study aims to identify the condition of corn plants based on imagery leaf using the gray level co-occurrence matrix (GLCM) method and artificial neural network (ANN) backpropagation. The GLCM method is used for extracting features from image leaf corn, whereas ANN backpropagation is used for classification condition plant corn based on features. The classification was done using a dataset of corn leaves with four conditions: healthy, leaf spot, blight, and leaf rust. Next, the leaf features are extracted using method GLCM and training on model ANN backpropagation to classify conditions of corn plants. After training on the model, the next step is model evaluation using the confusion matrix method. The research results show that the technique can produce accuracy, which is tall enough to identify condition corn plants, with an accuracy of 95%. This indicates that the use of GLCM and ANN backpropagation can be a good alternative in determining the condition of corn plants. This research provides benefits in facilitating the identification of the state of corn plants quickly and accurately.

**KEYWORDS:** Leaf Corn, GLCM, ANN, Backpropagation

### I. INTRODUCTION

Corn (*Zea mays ssp. mays*) is one of the carbohydrate-producing food plants the world's most important, besides wheat and rice, seeds corn is food tree for resident America Middle and South, as well as for part resident Africa and part region Indonesia, besides That corn Also become component important feed livestock. Production corn in Indonesia year on 2020 as big 29.02 million tons, provinces with corn production the largest national is East Java with the number production of 23.16 percent of national corn production on year 2020. Opportunities to increase corn production for meet domestic and export needs Still Enough big, program repair corn national level to increase productivity and expand area will held on environment or agroecosystem Which different, starting from a high productivity environment (land optimal) to low productivity environments (land marginal/dry) by Because That, different maize cultivation techniques are required And Specific in a manner ecological. Wrong One constraint moment production corn that is in land dry Which caused by lack water Because very depend on condition bulk rain, besides that, the level of pest attack and disease is factor Which very influence production corn dry, reason main low results corn in Indonesia is use of local varieties, soil fertility bad, fertilization which no adequate, as well as attack pest and disease. For can know plant corn caught disease Wrong only one that is with see condition leaf on plant corn, plant corn Which indicated disease usually No will bear fruit. Still Lots farmer Which need time long to know the condition of the corn plant, this can make plant corn future no grow in accordance hope para farmers.

There are many ways you can do it to get it help farmers to know the conditions plant corn with condition Healthy or caught disease with fast that is Wrong only one with use Machine Learning Which previously proven capable finish topic like this. As example do Classification of leaves that have properties as drug, study This done for can give information to people related to what kind of leaves have properties medicinal and has no medicinal properties, research This use method machine learning. There is a number of studies previously with studies case Which The same like Which done by (Iswantoro & Handayani UN, 2022), this study carried out a classification corn plant diseases using the method convolutional neural network (CNN) results from this research is the CNN algorithm is sufficient Good in do classification, and results testing produce level accuracy in Classification of diseases of maize plants as big 94%. Next study automatic Fuzzy Logic-Based Maize common Rust disease Severity Predictions with Thresholding and Deep Learning done by (Sibiya & Sumbwanyambe, 2021), identification process study This do approach with network VGG-16 produce accuracy testing 89%. Furthermore, study Which conducted by (Kshyanaprava et al., 2020) the

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study conducted maize leaf disease detection and classification using machine learning algorithms results from study This is algorithm random forest (RF) with accuracy highest 79.23% compared to the classification technique other. Study final related with classification pest and disease plant corn use method fuzzy random forest based on resampling repeated k-fold cross validation conducted by (Nearadiaty, 2022), the method used in this study is fuzzy random forest. Results from this research Namely classification using fuzzy method random forest that has been done to obtain model accuracy rate reaches 92%. Study previously with this research, using which The same that is dataset leaf corn.

Study previously average No do normalization data and alteration background rear, it can make the model inside do classification No get results optimal. The aim of this research is improving the results of the accuracy of the identification condition plant corn with propose method gray levels co-occurrence matrix (GLCM), artificial neural network (ANN) backpropagation, and enhance with cover lack Which there is on previous research to be able to improve accuracy results are better than that accuracy generated previously.

## II. RESEARCH METHODS

Draft study This that is do classification of conditions based on corn plants Leaf images use the GLCM method for extraction feature on image the leaves and JST backpropagation for do classification. Following explanation of the steps study This.

### A. Taking Datasets

In this process, the authors search for datasets that according to the research topic, therefore writer fetch public dataset coming from GitHub the image to be converted later become feature numeric.

### B. Pre-processing Data

Process This done for inspect and repair error Which found in the dataset, so it can next on step next. Technique Pre-processing data Which used in study This that is change the image background. This matter done so that the extraction process will focus on the main object only. There is a number of cases in previous research, where the image was not changed beforehand the background behind, so that own brightness or noisy on image Which extracted, thus reducing contrast object and causes the model to not be optimal when committing extraction features.

### C. Extraction Feature GLCM

Process This will extract characteristic to get the feature value in pixels on every image. With use GLCM get feature texture dissimilarity, correlation, homogeneity, contrast, ASM, And energy. Feature Which must There is on method GLCM namely (1) contrast which serves to measure pixel intensity, (2) working correlation measure how much correlate pixels and other angles, (3) functioning energy for measure mark diversity intensity, and (4) homogeneity function to measure the value of the similarity of variations image intensity. Some angles are used in do extraction features in the image are 0, 45, 90, and 135 represent direction Where pixel pairs are counted in the matrix GLCM. Each corner has different meanings and related implications analysis texture image.

### D. Normalization data

Normalization data done for group attribute from something relation so that form relation Which Good. Technique normalization This use equality 7.

$$\text{new\_data} = \frac{\text{data}}{10^7}$$

### E. Splits data

This stage is the division stage dataset become data training and data testing. Data sharing on \_ study This is 80/20 data training and data testing. Amount distribution the aim is to look at the model in predict testing data with a total of 770. In general, the model deep learning gets accuracy results Which Good If own amount data testing Which A little. So, in study this testing data is increased in number and then tested is model get results which is better?

### F. Classification backpropagation & Tuning Parameters \_

Next do the classification with method backpropagation. At stage in this case, identify the condition of the plant corn based on the leaf image.

### G. Evaluation Method

Process this done for evaluate performance of the model that has been designed previously for do identification condition corn plant. When the accuracy results generated does not exceed the result of previous research then back to process classification backpropagation and parameter set up produce accuracy Which Better. But when, accuracy results have exceeded the results from study previously so proceed to the next process viz taking conclusion.

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In this study the evaluation used the confusion method matrix. he is table Which containing calculations based on evaluations model classification based on amount studies case, and predicted Correct or wrong. More clearly can see on table 1.

**Table 1. Confusion Matrix**

<i>Classification</i>	<i>predicted Positive</i>	<i>predicted Negative</i>
<i>actual Positive</i>	<i>true Positive (TP)</i>	<i>False Negative (FN)</i>
<i>actual Negative</i>	<i>False Positive (FP)</i>	<i>true Negative (TN)</i>

In measurement performance using the existing confusion matrix four part for identify something prediction, including:

1. True Positive (TP) is amount data with positive actual values and mark prediction positive.
2. True Negative (TN) is amount data with mark actual positive and mark prediction negative.
3. False Positive (FP) is sum of data with actual value negative and mark prediction positive.
4. False Negatives (FN) is amount of data with actual value negative and mark prediction negative.

Accuracy is mark evaluation Which often worn on classification binary. Can see based on mark confusion matrix: accuracy (acc) is effectiveness of the results obtained in the process classification; accuracy done use equality (8) following.

$$Accuracy (\%) = \frac{(TP+TN)}{(TP+TN+FP+FN)}$$

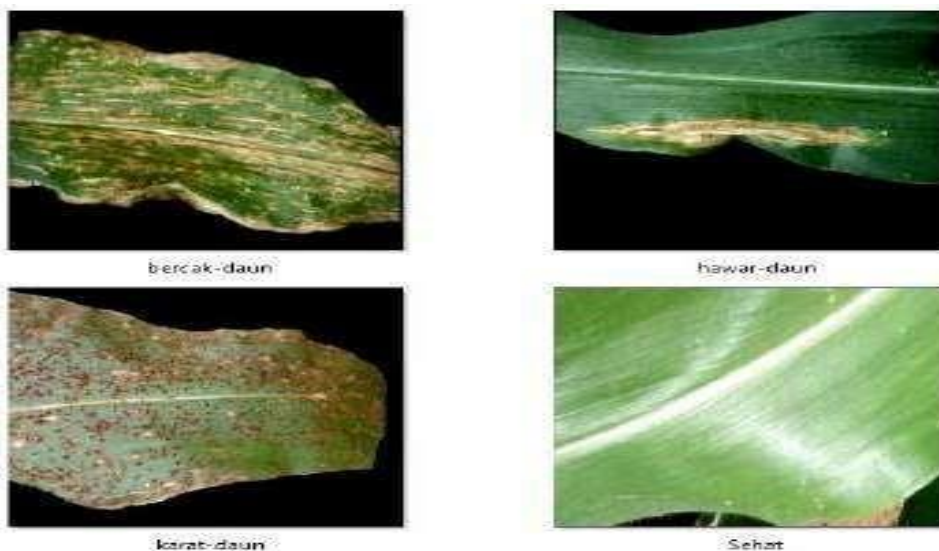
## H. Withdrawal Conclusion

Stage This is stage gift conclusion based on design model applied to previous studies and results testing Which has conducted in this study.

## III. RESULTS AND DISCUSSION

### A. Taking dataset

Study This use dataset leaf corn, dataset This taken from github <https://github.com/ibnujakaria/dataset-leaf-corn>, This dataset is used to train and test model moment do classification specifically on identification condition type leaf. following This is a viewable view of the dataset on figure 1.



**Figure 1. Datasets**

In figure 1 of this dataset there are 4 types picture that is leafspot, blight, rust- leaf, And Healthy. Amount \_ from each respectively picture in dataset they can see on table 1.

**Table 2. Number of classes dataset**

Type Picture	Number of Images
leaf spot	508
blight	985
leaf-rust	1192
Healthy	1162



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Table 2 is the result of the changes leaf type label through one hot encoding process where each type of leaf has a number value different binary. On this type of image example that is leafspot, Blight, Rust-Leaves, and Healthy. Label Encoder results on class dataset using the python program can be seen on figure 3.

```
1 enc = LabelEncoder()

1 YV = glm_df['Label'] = enc.fit_transform(glm_df['Label'].values)
```

Figure 3. Variable categorical

Picture 3 is appearance from attribute Which Still *categorical* the data, those attributes will in change become form *numeric*, can see on figure 4.

```
1 le = LabelEncoder()
2 le.fit(glm_df["Label"].values)
3 print(" categorical label : \n", le.classes_)
4 Y = le.transform(glm_df['Label'].values)
5 Y = to_categorical(Y)
6 print("\n\n one hot encoding for sample 0 : \n", Y[0])

categorical label :
['bercak-daun' 'hawar-daun' 'karat-daun' 'sehat']

one hot encoding for sample 0 :
[1. 0. 0. 0.]
```

Figure 4. Results label encoding

Figure 4 is the result that has been done alteration data *categorical* become *numerical* in *the class* dataset. Example is shown in the image *class* with mark 'Leafspot' so changed become '1.0.0.0'.

### C. Feature Extraction using GLCM

The results of the GLCM process for the image Corn leaves, saved in .csv format previously Already executed use program python. Following This results whole from the results of image feature extraction dataset can see on figure 5.

dissimilarity_0	dissimilarity_45	dissimilarity_90	dissimilarity_135	correlation_0	correlation_45	correlation_90	correlation_135	homogeneity_0	...	contrast_135	ASM_0
24.016524	24.111059	15.746410	22.781114	0.637701	0.658183	0.648255	0.677658	0.673211	...	1067.228136	0.006515
21.273662	28.642381	29.821731	39.239803	0.458492	0.146192	0.085471	0.056667	0.065214	...	1429.922998	0.004475
15.418217	11.117596	15.802449	20.052812	0.515600	0.296119	0.219700	0.204345	0.067116	...	689.550296	0.006554
13.983251	39.397245	39.881721	37.796844	0.807023	-0.206875	-0.228531	-0.172087	0.130513	...	3498.339383	0.000889
13.486328	87.953400	15.485304	17.203613	0.381588	0.072738	0.138328	0.076175	0.104838	...	879.479347	0.000870
19.279699	30.914530	34.610115	11.723208	0.769294	0.448144	0.624452	0.917486	0.968113	...	284.701191	0.000817
0.153731	15.055297	21.025704	68.258245	0.972122	0.619518	0.615125	0.675254	0.153288	...	748.679816	0.000803
13.054347	25.704142	31.326183	31.805260	0.846946	0.466536	0.199707	0.218882	0.082488	...	1573.610755	0.000690
15.142255	12.625717	23.436964	25.123465	0.648564	0.756227	0.195222	0.624072	0.851914	...	1533.365227	0.001248
9.504264	34.983553	39.124847	31.428893	0.922296	0.448197	0.324536	0.553855	0.714025	...	2148.898284	0.000657

Figure 5. The results of the gray level co-occurrence matrix (GLCM)

Figure 5 is results from extraction feature use GLCM, each image in datasets have number of features as much 24 features. because feature texture Which worn namely (1) contrast, (2) correlation, (3) ASM, (4) energy, (5) homogeneity, and (6) dissimilarity. Medium corner Which used in extraction This there are four ie 0°, 45°, 90°, and 135°.

### D. Normalization Data

Results from extraction feature use GLCM has a value with a very large scale big or very different, these things can make model machine \_ learning No optimal in do classification. Because attribute on datasets This own scale which is different. Scale Which different can see on figure 1.

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On features contrast\_135 and homogeneity\_0, therefore necessary done standardization in order to have the same scale when doing process classification. Technique normalization data This share each column on feature dataset with numbers raised to the power of 10. Normalization technique this use equality following. Where are many digits mark largest in each column? Here are the results standardization use technique normalization on dataset.

### E. Splits Data

Stage This is stages share dataset become data training and data testing, distribution on study This shared data training and data testing to 80/20. Amount distribution the aim see model in predict a total of 770 data testing. kindly general model deep learning gets good accuracy results when amount data testing Which A little. On study in this case, the data testing is increased in number, then tested to get better results. Table 3. describes the division of the data in do in this research.

**Table 3. Splits Data**

Information	Data Training	Data testing	Amount
Proportion	80%	20%	100%
Amount	3077	770	3847

On Table 3 explained that distribution data training and data testing is done is to divide data become 80/20, which is 80% For data training which amounted to 3077 data and 20% for total testing data 770 data, meaning the whole data from dataset amount 3847.

### F. Classification Backpropagation

Testing This use method backpropagation Which done for now ability something model in identifying plant conditions corn based on the leaf image. In previous research, the power of the system in identifying types of herbal leaves depend on the process training for produce accuracy in determine type leaf Which used on stage testing parameter backpropagation. A number of Tests carried out previously on the image of herbal plant leaves can be seen on table 4.

**Table 4. Testing backpropagation**

No	Neurons Inputs	Hidden Neurons	Neuron's output	Epoch	Batches size	Acc.
1	24	34, 150, 300, 200	4	1000	22	90%
2	24	34, 150, 300, 200	4	2000	22	89%
3	24	42, 150, 300, 200	4	1000	22	87%
4	24	24, 150, 300, 200	4	1000	22	88%
5	24	24, 150, 300, 200,250	4	1000	22	95%
6	24	24, 150, 300, 200.50	4	1000	22	93%

On table 4 parameter Which used is *inputs neurons layers, hidden layers neurons, output layers neurons, epoch, And batch size*. Test This consists of six classification trials, every test done with set different parameters, starting with enhancement mark *hidden neurons* on *layer* and decrease the value of *hidden neurons* on *layers* each parameter. Change *epoch* and *batch sizes* Also tested to get the right combination that produce high accuracy values in the classification process backpropagation. Experiment fifth own accuracy highest, that is 95%, with architecture *neurons inputs 24, concealed neurons 24, 150, 300, 200,250, neurons output, epoch 1000 And batch size 22*. Mark in euros *i input 24* Because according to the number of features dataset processing. *input*



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*neurons* This will bring data enter inside \_ system for later processing on the layer furthermore. There are 5 *hidden layers*, where n is the value *hidden layer* is the randomization value of each test Which done. Randomization \_ increase neurons and decline neurons for sent to epoch as Wrong One stage for get an evaluation value. *Output layers* consists of 4 neurons to be equal to dimensions 4 *categorical columns* on *y\_train* and *y\_test*. Made to equalize the number of classes in the dataset i.e amount 4 class. Furthermore *epoch*, is amount *complete passed* Which must done on dataset *training*, the *epoch* value is set to 1000 because on previous trials *epoch* not enough from 1000, or try to raise but not produce accuracy Which Better. So, *batch sizes* is a number sample Which processed before the model is *updated*. Results accuracy of all experiment's classification is done, can be seen on picture 6.



Figure 6. Results accuracy Test

## G. Evaluation Confusion Matrix

Study This do 6 testing with use method classification JST backpropagation. The experiment that produces the best accuracy is the fifth try. Fifth experiment use inputs layers 24, own 5 hidden layers with each neuron, i.e., 24, 150, 300, 200,250, output layer 4, epoch 1000, And batch sizes 22. Confusion matrix from test fifth showed on Picture 7.

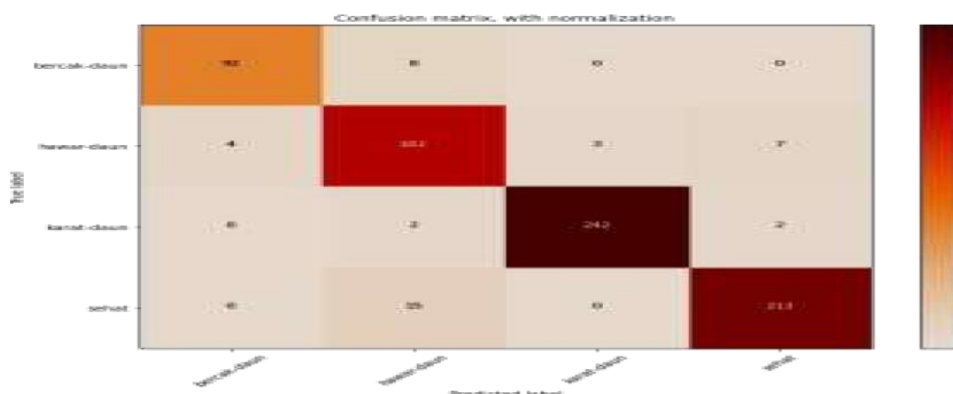


Figure 7. Results confusion matrix

Figure 7 is the result of the evaluation of all classes use the confusion matrix. As much eight data Which should category leaf spot identified Wrong namely as leaf blight. Then four, three, and seven that should be categories blight- leaf but Wrong identification that is four identified as leafspot, three as rust-leaf, and seven as healthy. Also, there is error identification which should be rust-leaf but as much as 2 data identified as blight leaf, And 2 as Healthy. last\_ happened 15 Wrong identification Which should Healthy but identified as leaf blight.

Application of ANN backpropagation with some parameters on the corn leaf dataset get results best with mark accuracy of 95% on the fifth try. The results can be seen in figure 7. accuracy This is ratio prediction Which appropriate in identify condition plant corn in a manner whole in dataset. Amount data Which predicted Wrong is 41 data, and total data Which expected correct is 729 data of the total whole data test Which amount 770 data.

## V. CONCLUSIONS

Based on the analysis performed with use dataset leaf corn Which own 4 class leaf, can concluded that:

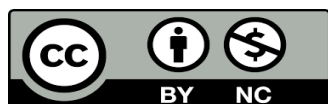
- In this study there were six tests. Results the best is in the 5th test with accuracy 95%. A curation best This happen enhancement 1% from results accuracy Which generated in previous studies that is 94%.

## Identification of Condition of Corn Plant Based on Leaf Image Features Using Gray Level Co-Occurrence Matrix and Backpropagation Neural Network

- There is a number of stages process study Which help find condition model Which appropriate so that produce accuracy Which Good moment process classification done namely: (1) pre-processing data, (2) extraction features, (3) normalization data, (4) split data, (5) classification, (6) evaluation use confusion matrix.

### REFERENCES

- 1) K. Agriculture, "Analysis Performance Trading Corn," Pussy. Data and System. inf. Question. Secretary Ministry General. Question. 2021, pp. 5–24, 2021.
- 2) MA Suparlan, Nurali, Edi Wati, "CONTROL INTEGRATED PEST MAIN PLANT CORN (Zea Mays, L) IN LAND DRY," 2022.
- 3) Koesrini, "Technology Cultivation Corn in Land Swamp", 2016.
- 4) F. Afandi, "Disease Corn and Method get over it, 2019.
- 5) Agriculture, "Cultivation of Corn," 2022.
- 6) P Semitera, "Abstract Seminar National Technology Applied (SEMITERA) 2021," Monday. Technol. therapy. 2021.
- 7) K. Saputra S and M. I. Wind-War, "Classification Plant Drug Based on Extraction Feature Morphology Leaves Using Artificial Neural Networks," J. Inform, vol. 5, no. 2, pp. 169–174, 2018, doi: 10.31311/ji. v5i2.3770.
- 8) D. Iswantoro and D. Handayani UN, "Classification Disease Plant Corn Use Method Convolutional neural network (CNN)," J. Science. Univ. Batanghari Jambi, vol. 22, no. 2, p.s. 900, 2022.
- 9) M. Sibya and M. Sumbwanyambe, "Automatic fuzzy logic-based cornstarch common rust disease severity predictions with thresholding and deep learning," Pathogens, vol. 10, no. 2, pp. 1–17, 2021, doi: 10.3390/pathogens10020131.
- 10) A K. S. & S. C. M. Kshyanaprava Panda Panigrahi, Himansu Das, "Maize Leaf disease detection and Classification using Machine Learning Algorithms," Prog. Comput. Anal. netw. , vol. volume 111, 2020.
- 11) A NEARDIATY, "Classification Pest and Disease Corn Plant Using Fuzzy Random Method Forest Based on Resampling Repeated K-Fold Cross validation," 2022.
- 12) R. Widodo, A W. Widodo, and A Supriyanto, "Utilization Characteristic Gray Levels Co-Occurrence Matrix (GLCM) Image Fruit Orange tangerine (Citrus reticulata Blanco) for Quality Classification," J. Developer. Technol. inf. and Computing Science. , vol. 2, no. 11, p. 5769–5776, 2018.
- 13) H. Wibawanto, A. Susanto, TS Widodo, and BC Tjokronegoro, "Identification of Cystic Mass Image Based Feature GrayLevel Co-Occurrence Matrix," Monday. Nas. app. Technol. inf. , vol. 2008, no. Snati, p.s. 55281, 2008.
- 14) WI Praseptiyana, AW Widodo, and MA Rahman, "Utilization Characteristic Gray Levels Co-occurrence Matrix (GLCM) for Melasma Detection in Facial Images," J. Development Technol. inf. and Computing Science. , vol. 3, no. 11, pp. 10402–10409, 2019.
- 15) Nunik Rahmawati K, "Algorithm of Artificial Neural Networks with Method Learning Vector Quantization Nunik Rahmawati K STUDY PROGRAM TECHNIQUE INFORMATICS," 2007.
- 16) EPC Edi Ismanto, "Algorithmic Neural Networks Backpropagation In predict Availability Riau Province Food Commodities," Rabbit J. Technol. And Sist. inf. Univrab , vol. 2, no. 2, pp. 196–209, 2017, doi: 10.36341/rabit.v2i2.152.
- 17) F. Marpaung et al., COMPUTER VISION AND DIGITAL IMAGE PROCESSING. 2022.
- 18) adi ultimate, "Textures Analysis – Gray-Level Co- Occurrence Matrix (GLCM) – GUI matlab," 2017.
- 19) L. Veronica, I. H. Al Amen, B. Hartono, and Q Kristianto, "Extraction Feature Texture Use GLCM Matrix on Images with Variations in Object Direction," Pros. SENDI\_U , pp. 978–979, 2019.
- 20) S. Goddess, "Comparison 5 Method Algorithm Classification Data Mining," J. Techno Nusa Mandiri , vol. XIII, no. 1, pp. 60–66, 2016.
- 21) IW Saputro and BW Sari, "Algorithmic Performance Test Naïve Bayes For predictions Period Studies Student," Creat. inf. Technol. J. , vol. 6, no. 1, p.s. 1, 2020.
- 22) Kusuma wahannggar, "Classification Image Cancer Skin Melanoma Use Method support Vector Machine ( Svm ) Image Classification of Skin Cancer Melanoma using support Vector Machine ( Svm ) Method," 2016.



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## Researching the Factors Affecting the Engagement of Employees with the Organization at Mobio Vietnam Software Application Joint Stock Company



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**ABSTRACT:** This research was conducted to evaluate the factors influencing the engagement of employees with the organization at Mobio Vietnam Software Application Joint Stock Company by surveying the employees. Cronbach's alpha, EFA, and multiple regression analysis were used as tools. The results presented a model of six factors that have a positive impact on employee engagement, listed in decreasing order of their effect level: leadership style, job characteristics, perception of development, income and fairness, work environment, and promotion opportunities. Based on this, the research proposes managerial implications for the company's leaders and managers to enhance the engagement of employees with the organization.

**KEYWORDS:** Engagement, Employee engagement, The engagement of employees with the organization.

### 1. INTRODUCTION

Currently, employee turnover is a frequently discussed issue in many businesses, but solutions and methods to reduce it are still limited. The departure of key personnel leads to the departure of customers and creates an undercurrent of resignations for the remaining employees. Many managers believe that organizations find it difficult to achieve their goals and may incur significant losses without employees' engagement. To retain employees, managers must identify the factors that influence employee engagement, thereby addressing the weaknesses in the organization's management operations and increasing employee engagement with the organization.

In the context of international integration, competition between economic organizations is becoming increasingly fierce. Recruitment has already been challenging, but retaining employees and helping them connect with the organization is even harder. In addition to the IT industry's shortage of software engineers, companies face the problem of "brain drain." Many talented engineers leave to work for joint venture companies and foreign companies when Vietnam joins new free trade agreements such as CPTTP, EVFTA, AANZFTA, EAEU, etc. In the technology industry, companies' competition is fierce. The situation of skilled employees leaving the organization has become prevalent, making it difficult for employees to maintain long-term engagement with the organization, posing difficult challenges for business leaders.

Mobio Vietnam software application joint stock company is a technology company that specializes in providing CDP & CEM Platform products - a comprehensive platform that helps businesses manage customer data and manage related business processes. Confronted with the competitive pressure, the company needs to restructure its operations, including the effective allocation and utilization of human resources. Mobio has transformed from a tech startup to a martech product provider in Vietnam. In the process of operations, Mobio always tries to research and analyze the factors that affect employees' engagement with the organization to come up with ways and measures to improve the effectiveness of HR management.

### 2. OVERVIEW OF THE RESEARCH

According to the views of Mowday, Steers, and Porter (1979), "organizational commitment is a strong, positive attitude that employees have toward a particular organization and their active participation in it". This concept refers to a positive relationship with the organization that motivates employees to invest their effort in contributing to the success and development of the organization. Meyer & Allen (1991) define organizational commitment as a psychological state that represents the employee's relationship with the organization and is closely related to the decision to remain a member of the organization. Legge (1995) argues that "employee commitment is completely different from the obedient behavior that is seen as a characteristic of

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traditional HR management". Mathis and Jackson (2000) state that organizational commitment "is the degree to which employees trust and accept the organization's goals and wish to remain with the organization."

Since 2000, the field of human resource management has been renewed in its approach to studying employee behavior and has been widely introduced. There are many viewpoints and arguments that "the engagement of employees with the organization" seems similar to "organizational commitment," and the engagement of employees with the organization can be seen as a step forward from organizational commitment (Robinson et al., 2004). This is understandable because engagement and organizational commitment have similar meanings, both indicating a bond that expresses emotions and a desire to stay with the organization. The initial difference can be easily distinguished: employees commit to the organization because of the benefits they receive, while the engagement of employees with the organization emphasizes voluntary awareness, inspiration, and effort devoted to working effectively, motivated by the organization. The difference can also be seen from the perspective of a specialized researcher; it will be difficult to separate which measurement dimension is appropriate because each study has its own goals and depends on many factors, including "organization, group, individual, and job" (Can Huu Dan, 2020). According to Schaufeli et al. (2002), engagement is "a state of awareness about a long-lasting and pervasive emotional relationship, not focusing on any specific object, event, individual, or behavior". Robinson et al. (2004) define employee engagement as "a positive attitude toward the organization that enhances the value of the organization. Organizations need to develop and nurture this engagement, which is a two-way relationship between the employee and the employer. Berry (2010) defines employee engagement as the degree to which employees attach to the organization; employees' positive work attitude; and how long employees stay as a result of that engagement. According to Can Huu Dan (2020), "the engagement of employees with the organization is the voluntary effort of employees to strive, be proud, and be willingly loyal to the organization, helping to promote the operational efficiency of the organization". Voluntary engagement is a close attachment that comes from emotions and is voluntary on the part of the employee to be loyal to the organization, ready to win love and pride in accompanying the organization; Voluntarily make efforts to contribute to business development.

In the research using the synthesis method of Mathieu and Zajac (1990), individual characteristics, job characteristics, the relationship between leadership and team, organizational characteristics, and current role position were listed as the first factors influencing the engagement of employees with the organization. Robinson et al. (2004) conducted a study on employee attachment emphasizing a sense of value. The research identified ten factors that would impact the engagement of employees with the organization, making employees feel valued: (1) Personal characteristics, (2) Experience in the job, (3) Manager, (4) Employee appraisal, (5) Training and development opportunities, (6) Communication, (7) Salary and welfare, (8) Health and safety, (9) Friendly with family, (10) Job satisfaction. According to Tran Kim Dung (2006), organizations will gain employee engagement by satisfying them in different aspects of work-related needs such as: (1) Job; (2) Promotion; (3) Leadership; (4) Colleagues; (5) Salary; (6) Welfare and (7) Working conditions. Zain et al. (2009) conducted a study on the influence of employee engagement in a listed company in Malaysia. This research identified four aspects that influence engagement: (i) teamwork, (ii) training and development, (iii) communication in the organization, (iv) praise and recognition. However, the drawback of this study is a small sample size, the included factors in the model are still low, and the solutions proposed are still quite general. The research of Anitha J (2014), evaluated employee engagement through seven factors: work environment, leadership, colleagues, training and development, policies and procedures, working conditions, and employee compensation. The research results showed that when choosing factors to add to the model, a more suitable selection should be made to increase the model's significance.

In summary, the reality of the engagement of employees with the organization is a broad and diverse concept. Each study explores employee engagement from different perspectives; most studies have not yet covered all aspects of engagement, which demonstrates the characteristics of Vietnamese enterprises. Moreover, the engagement of employees with the organization is predominantly studied from a psychological, emotional, and individual perspective; studies have not emphasized the voluntary awareness of engagement and employees' engagement behavior.

### 3. RESEARCH MODEL AND HYPOTHESES

Based on the literature review and reference to in-depth studies on the factors influencing the engagement of employees with the organization, the authors have chosen to combine a part of the models of Araya and Haiyan (2015) and Robinson et al. (2003) with other studies and propose a research model of the factors influencing the engagement of employees with the organization at Mobio Vietnam Software Application Joint Stock Company.

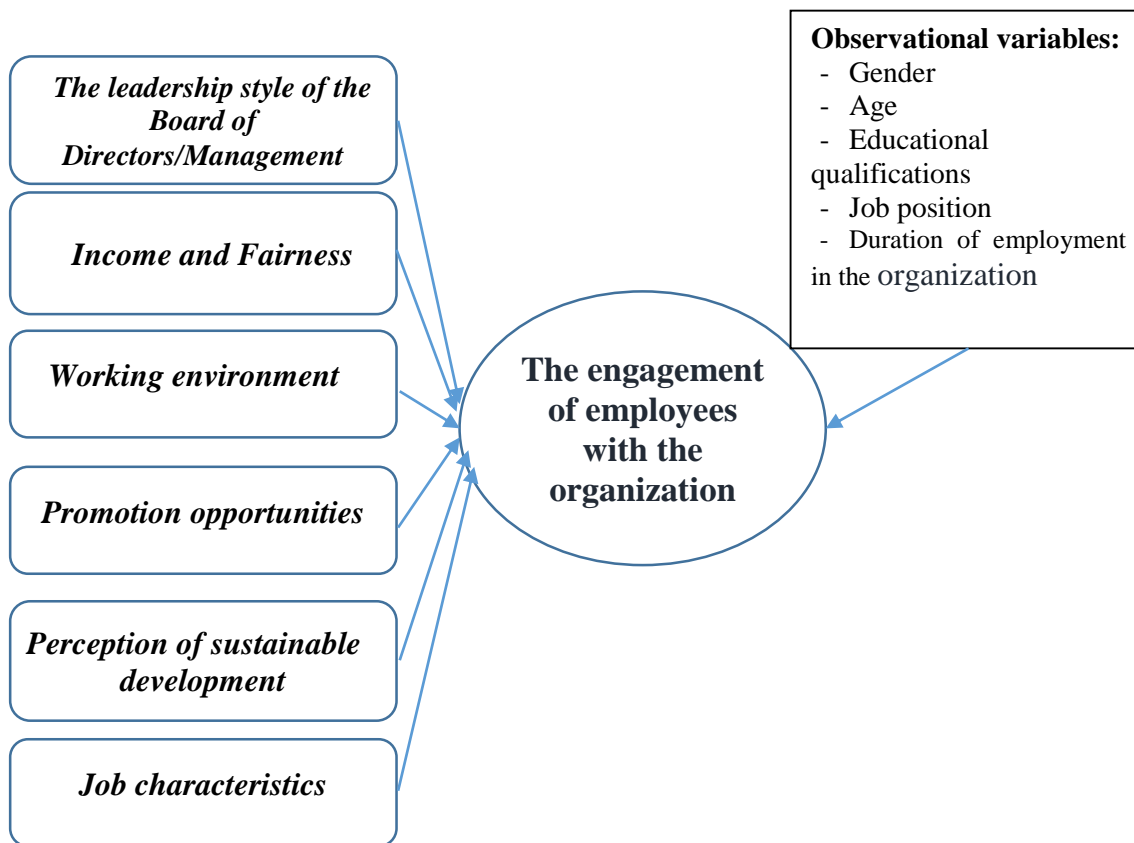


Figure 1: Research model of factors affecting employee engagement with the organization in Mobio Vietnam Software Application Joint Stock Company

The research model of factors affecting the engagement of employees with the organization at Mobio Vietnam Software Application Joint Stock Company used in this study consists of six independent variables and one dependent variable.

To clarify the relationship between the factors influencing the engagement of employees with the organization, the author will construct and test six hypotheses, corresponding to the six independent variables that positively impact the engagement of employees with the organization.

#### 4. RESEARCH FINDINGS

##### 4.1. Descriptive statistics of the study sample

The study was conducted by surveying 218 employees, with 200 completed surveys meeting the requirements. Below are the results of a descriptive statistical analysis of the characteristics of the 200 surveyed employees.

Table 1. Information about the survey sample

	Ratio (%)	Standard deviation	Minimum	Maximum
<b>Gender: Female</b>	49.0	0.4446	0	1
Age	25.0	6.41	22	44
Ethnicity: Kinh	99	0.1361	0	1
<b>Education</b>				
Vocational school	1.0	0.1708	0	1
College	8.0	0.3847	0	1
University	85.8	0.4406	0	1
Postgraduate	5.2	0.2233	0	1

## Researching the Factors Affecting the Engagement of Employees with the Organization at Mobio Vietnam Software Application Joint Stock Company

Job position				
The board of directors	3.4	0.1808	0	1
Management officer	25.5	0.4365	0	1
Employee	71.2	0.4539	0	1
Time working at the company				
Less than 1 year	22.4	0.5003	0	1
From 1-3 years	54.3	0.4300	0	1
From 3-5 years	18.0	0.3847	0	1
Over 5 years	5.2	0.2233	0	1

Source: Computation from survey data

### 4.2. Reliability testing of the measuring instrument:

The data obtained from a survey questionnaire was processed using SPSS version 22.0 software. The Cronbach's alpha test indicated that the observed variables had a correlation coefficient of greater than 0.3 and a Cronbach's alpha coefficient of greater than 0.7. The measurement scale reliability evaluation results showed that all the measurement scales and observed variables met the requirements.

Table 2. Evaluation results of the reliability of the measurement scale using Cronbach's Alpha coefficient

Factor	Indicators	Average interitem covariance	Cronbach's Alpha
The leadership style of the Board of Directors/Management	5	0.398386	0.8284
Income and Fairness	5	0.392292	0.8434
Working Environment	5	0.474499	0.7373
Promotion Opportunities	5	0.422949	0.8276
Perception of sustainable development	5	0.378298	0.7420
Job Characteristics	5	0.525045	0.8150
The engagement of employees with the organization	6	0.427080	0.8256

Source: Computation from survey data

### 4.3. Factor analysis with EFA exploration

The scale of engagement of employees with the organization has a KMO coefficient of 0.952, which meets the KMO condition of  $> 0.5$ . The Bartlett test has a significant value of 0.00, which is less than 0.05. The results of the EFA factor analysis with the Varimax rotation method show that the variables in the model are all greater than 0.5. This indicates that the observed variables are all valid and meaningful, ensuring the convergence of each measurement in the model.

Table 3. Factor rotation matrix of factors influencing the engagement of employees with the organization

Transforming observation	Perception of sustainable development	Promotion Opportunities	The leadership style of the Board of Directors/Management	Job Characteristics	Income and Fairness	Working Environment
Leadership 1			0.778			
Leadership 3			0.787			
Leadership 5			0.796			
Leadership 4			0.793			
Leadership 2			0.819			
Income 2					0.825	
Income 1					0.831	

## Researching the Factors Affecting the Engagement of Employees with the Organization at Mobio Vietnam Software Application Joint Stock Company

Income 3					0.813	
Income 5					0.754	
Income 4					0.813	
Environment 3						0.797
Environment 2						0.830
Environment 1						0.741
Environment 4						0.825
Environment 5						0.797
Opportunities 2		0.746				
Opportunities 4		0.842				
Opportunities 3		0.791				
Opportunities 5		0.785				
Opportunities 1		0.800				
Perception 4	0.796					
Perception 5	0.760					
Perception 3	0.770					
Perception 1	0.717					
Perception 2	0.764					
Job 2				0.784		
Job 1				0.778		
Job 5				0.734		
Job 3				0.732		
Job 4				0.783		

*Source: Computation from survey data*

Through the results of exploratory analysis, the factors influencing employee engagement were maintained with six factors and 36 appropriate observed variables.

#### 4.4. Correlation Analysis

The Pearson correlation test results (Table 4) and correlation matrix show that the significance level of the coefficients is very small ( $\text{sig} = 0 < 0.05$ ), thus the correlation coefficients are statistically significant and meet the conditions for regression analysis.

**Table 4. Pearson Correlation Coefficient Matrix**

TT	Tên biến	1	2	3	4	5
1	The leadership style of the Board of Directors/Management	1				
2	Income and fairness	0.406**				
3	Working Environment	0.362**	0.488**			
4	Promotion opportunities	0.498**	0.502**	0.488**		
5	Perception of sustainable development	0.432**	0.408**	0.378**	0.438**	
6	Job characteristics	0.413**	0.416**	0.422**	0.424**	0.504**

\*\* . Significant correlation at a meaningful level. 0.01

*Source: Computation from survey data*

#### 4.5. The regression results are as follows

The statistical values of the regression analysis reveal the suitability of the model for the given dataset. The significantly high F-statistic of 108.864 and a low sig-value of 0.000 indicate this. The Durbin-Watson statistic of 1.848, being less than three, suggests that there is no correlation among the model's variables. The VIF coefficients for all variables being less than two demonstrate the absence of multicollinearity. The adjusted R-squared coefficient of 0.650 highlights that 65.0% of the dependent variable variation is explained by the independent variables.

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Table 5: Estimated results of factors affecting employee engagement with the organization at Mobio Vietnam software application joint stock company

Variable	The engagement of employees with the organization		VIF
	Standardized Coefficients (beta) $\beta$	Sig.	
Gender	0.013	0.511	1.086
Age	-0.034	0.158	1.622
Educational qualifications	-0.003	0.881	1.154
Job position	-0.027	0.235	1.461
Duration of employment in the organization	0.029	0.186	1.409
Leadership (MLE)	0.248	0.000	1.675
Income (MIN)	0.155	0.000	1.684
Environment (MEN)	0.130	0.000	1.693
Opportunities (MOP)	0.102	0.000	1.842
Perception (MPE)	0.168	0.000	1.639
Job (MJ0)	0.207	0.000	1.622
Number of observations	200		
Adjusted R Square ( $R^2$ )	0.650		
F	108.864***		
Durbin-Watson	1.848		

Source: Computation from survey data

The regression coefficients all bear a positive (+) sign, which indicates the direct relationship between the independent variables and the dependent variable. The engagement of employees with the organization (EN) is most strongly influenced by: the leadership style of the Board of Directors/Management (LE) ( $\beta_1 = 0.248$ ); job characteristics (JO) ( $\beta_6 = 0.207$ ); perceived opportunities for development (PE) ( $\beta_5 = 0.168$ ); income and fairness (IN) ( $\beta_2 = 0.155$ ); working environment (EN) ( $\beta_3 = 0.130$ ); opportunities for promotion (OP) ( $\beta_4 = 0.102$ ). Standardized regression equation:  $EN = 0.248LE + 0.207JO + 0.168PE + 0.155IN + 0.130EN + 0.102OP + \epsilon$ .

## 5. Conclusion and Managerial Implications

### 5.1. Conclusion

Through the research process, the author utilized an appropriate quantitative research method and statistical tools to identify the six factors that affect the engagement of employees with the organization in decreasing order as follows: The leadership style of the board of directors or management, job characteristics, perceived opportunities for development, income and fairness, working environment, and opportunities for promotion. The results also indicated no difference in the level of engagement based on gender, years of work experience, or education, while differences existed based on job positions and seniority.

In the fierce competition in the market and the unpredictable socio-economic environment, being good at one's job and dedicating oneself to work alone is not enough to bring success to employees. However, with support, sharing, and assistance from the Board of Directors and management, employees can achieve positive values and success. Studying the factors affecting employee engagement is meaningful both theoretically and practically. The research contributed to building a theoretical foundation for the engagement of employees with the organization. Practically, the results helped the senior leadership team of Mobio Vietnam Software Joint Stock Company understand the impact of the factors on employee engagement with the organization. Based on this, they can consider and implement policies and solutions to enhance the employees' engagement with the organization and achieve vital objectives, thereby improving the reputation and position of the company.

### 5.2. Specific managerial implications based on research results

Employees are the ones who build the reputation and brand of a company and are also the key to its success. Therefore, the leadership style of the Board of Directors and management needs to pay close attention to increasing the engagement of employees with the organization.



## **Researching the Factors Affecting the Engagement of Employees with the Organization at Mobio Vietnam Software Application Joint Stock Company**

### ***\* The Board of Directors/Management needs to demonstrate a professional working style***

The research results indicate that the leadership style of the Board of Directors or management is one of the six factors strongly influencing the engagement of employees with the organization. According to employee perception, leadership has a significant impact. Therefore, to improve employee engagement, the board of directors or management needs to:

Regularly share and provide information to employees. If employees receive timely support and information, they will feel understood and respected, thereby achieving higher work efficiency. The Board of Directors or Management can share information by (1) notifying all employees of new announcements, decisions, or regulations changed in the company and (2) organizing meetings or surveys to gather feedback from employees. With this sharing method, employees have the opportunity to contribute their opinions or share difficulties during implementation, and the company will come up with more innovative solutions.

The board of directors or management needs to formulate specific and clear policies and regulations to attract and retain highly skilled and experienced employees who contribute to practical activities. Reward encouragement directly with material and spiritual gifts such as vacations, healthcare packages, or support for training costs, and commend employees for excellent work performance or commendation to maintain 3-year engagement,... The board of directors or management needs to have a clear role direction, and management needs to standard, consistent and specific in arranging job roles. Continue to maintain and innovate meetings, contact and receive employees' opinions about the working environment, company policies (salary, bonus, scientific research, training, etc.), opportunities for training and promotion at work, other support services, etc.

### ***\* Continue to maintain attractive job characteristics for employees***

The company needs to provide comprehensive information and resources related to employees' work, which helps employees understand their jobs better and feel highly evaluated. The job at the company has specific characteristics that require deep knowledge and skills, attracting candidates with creative thinking and dedication during their job implementation. The company needs to create jobs that provide promotion opportunities to attract employees with ambition, optimism, and a desire for promotion in their careers. Proposed promotion plans applied clear incentives that encouraged employees to try to complete their tasks. This will motivate employees, promote self-development, and create breakthrough products and services. The job characteristics need to have diverse activities that are not monotonous, avoiding boredom and allowing employees to develop many skills. Create job characteristics that allow employees to decide on the assigned job part and come up with their own solutions; continue to design jobs properly with appropriate working hours to help employees balance their work, life, and family.

### ***\* Establish a specific and clear business development goal***

Building a specific and clear business development goal helps generate employee trust during work and creates a personal brand for themselves. In the company, some employees have a psychological concern about instability and unsustainable development. Building a development goal, enhancing the brand, and creating credibility for the company will play a positive role in eliminating their anxiety in an unclear strategy environment and help employees confidently assert themselves, work at the company, and be proud of themselves. The company needs to continue sharing and updating information on the direction and goals of the company. When understanding the direction and goals of the enterprise, employees themselves will determine their own goals according to the organization's goals. Sharing sessions about the company's direction will help employees understand the value of their work, their role in the company, and the responsibilities and rights they will receive from their work.

### ***\* Build a competitive income system***

The company needs to improve its competitive salary system and identify reasonable income levels, as this factor is closely related to employee benefits and significantly affects their engagement. The company needs to ensure employee income levels and meet competitive factors in the labor market, especially in the technology field. The wage regime needs to be built with clear criteria linked to each individual employee's capability and work results, each department, and the enterprise. This ensures fairness in wage payments and creates trust, encouraging employees to work and promoting the bond between individuals and teams.

In order to increase the income of employees, the company needs to adjust personnel and rearrange personnel in some departments with excess personnel in order to balance and harmonize the salary, bonus fund, and welfare. Develop and improve employee assessment mechanisms based on appropriate approaches (based on job objectives or capabilities). With the job description, specific job objectives, and detailed competency framework, employees' work processes are comprehensively evaluated not only in completing job tasks but also in their capacity, behavior, and attitude during work. Moreover, apart from income, concern, and spiritual rewards, flexible policies suitable for each object always play an important role in contributing to the employees' satisfaction. Employees need to be rewarded and recognized promptly when they take new initiatives or

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excellently perform assigned tasks. Rewards need to be timely, correct, and communicated through appropriate communication channels.

### **\* Provide an ideal working environment for employees**

The company needs to create a working environment where employees feel most comfortable unleashing their potential and contributing to its development. A healthy environment is one where employees can actively perform their work with their own judgment, leading to high efficiency. A healthy work environment where employees can share their personal knowledge and experience allows employees to feel more attached to their work, colleagues, and organization. Therefore, the company needs to try to establish measures to create sustainable bonding between employees and colleagues, between employees and leadership, etc. Building an open work environment where there is a lot of interaction among colleagues in each department with each other is the first step in creating engagement. And that can also mean sharing knowledge and experience at work and in life, sharing the joy, success, and difficulties of each individual. The company should regularly organize internal activities such as arts, sports, tourism, and seminars to allow employees to exchange ideas, talk to each other, and build more trust in the work process. The enterprise needs to implement measures to eliminate unhealthy competition in employee work, emphasize honesty, be absolutely strict with fraudulent behavior, speak ill of colleagues, and cause internal disunity.

### **\* Create more promotion opportunities for employees in the development process**

The company needs to focus on training strategies and creating career development opportunities for employees. These are important factors in building and encouraging long-term employee engagement, especially among the highly trained and skilled employee contingent. Understanding the thoughts and aspirations of employees and conveying clear criteria about development opportunities are essential to helping employees realize and motivate appropriate investment for their development path. To increase the engagement of employees with the organization, the board of directors and management need to focus on training and career advancement for employees. By being trained with deep skills and knowledge in their field of expertise, employees will feel valued, trusted, and have the motivation to be more attached to the company. Companies can provide training programs, internal training, meetings, and training courses to help employees improve their professional skills and deep knowledge in their field of function; attention should be paid to providing employees with sufficient time to learn and self-develop.

To create an environment that emphasizes employee development, the company needs to develop specific, clear directions and consider developing employees at their company as a lever for development. The company is willing to work on programs such as visiting, studying, or training courses with international training units so that employees have the opportunity to access and update new knowledge and technology in countries worldwide, thereby creating additional motivation for them to invest properly in their development path while also creating a high-quality, competitive human resource. Although the budget for international training courses is quite expensive, this is essential work that the company should implement to develop its human resources and create a competitive position in the future.

## 6. LIMITATIONS OF THE RESEARCH

(1) The theme only assesses the level of engagement of employees with the organization at Mobio Vietnam Software Joint Stock Company according to the survey of the employees themselves, yet it has not been analyzed specifically to find out the strengths and weaknesses of each factor, from which to propose effective solutions to enhance the engagement of employees with the organization.

(2) There are many other factors that impact the engagement of employees with the organization that this study has not mentioned. That is also a suggestion for further research.

## REFERENCES

- 1) Anitha, J. (2014). 'Determinants of employee engagement and their impact on employee performance', *International Journal of Productivity and Performance Management*, 63(3), 308-323.
- 2) Araya, S. H., & Haiyan, M. (2015). How job satisfaction factors affects components of organizational commitment: Study on employees of Star Hotels in Eritrea. *International Journal of Human Resource Studies*, 5(4), 95-109.
- 3) Berry M. (2010). *Predicting Turnover Intent: Examining the Effects of Employee Engagement, Compensation Fairness, Job Satisfaction, and Age*. The dissertation for the degree of philosophy, Univer of Tennessee – Knoxville.
- 4) Can Huu Dan (2020). *The impact of organizational culture on employee commitment in Vietnamese businesses*. PhD thesis in Human Resource Management. National Economics University.

## Researching the Factors Affecting the Engagement of Employees with the Organization at Mobio Vietnam Software Application Joint Stock Company

- 5) Tran Kim Dung (2006). Scale for measuring sense of commitment to the organization. *Economic Development Magazine*, No. 184, p. 50-52.
- 6) Legge K. (1995). *Human Resource Management, Rhetoric's and Realities*. Macmillan, Basingstoke.
- 7) Mathieu, J. E., & Zajac, D.M. (1990). A review and meta- analysis of the antecedents, correlates, and consequences of organizational commment. *Psychology Bullentin*, 180, pages 171-194.
- 8) Meyer, J. P., & Allen, N. J. .(1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review*, 1, 61–89.
- 9) Mowday, R., Steers, R., & Porter, L., (1979). The measurement of organizational commitment, *Journal of Vocational Behavior*, 14:224-247.
- 10) Reports of Mobio Vietnam Software Joint Stock Company. (2020 - 2023).
- 11) Robinson, D. and Hayday S. (2004). *The Enganing Manager*. Institute for Employmet Studies.
- 12) Schaufeli, W. B., Salanova, M., González-Romá, V., and Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach, *Journal of Happiness studies*, No. 3, volume 1, p. 71-92.
- 13) Zain, Z. M., Ishak, R., and Ghani, E. K. (2009). "The influence of corporate culture on organisational commitment: A study on a Malaysian listed company", *European Journal of Economics, Finance and Administrative Sciences*, No. 3, p.16-26.



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## Alternative Sources of Finance: Evidence from Micro, Small and Medium Scale Enterprises (MSMEs) in Dala Local Government Area-Kano State of Nigeria



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**ABSTRACT:** This study assesses the alternative sources of financing of MSMEs in Dala local government area. The major objectives of the study is to determine the level of access and usage of alternative sources of finance, and to assess the effectiveness of MSMEs in securing financing as well as the constraints faced by MSMEs in applying for and securing funding from the lending agencies. The study employs the survey research design, data were collected via questionnaire, and analysed using descriptive statistics. The findings of the study revealed that MSMEs in Dala local government are accessing and using all the available alternative sources of financing, although many of which are on a limited scale. And the best external sources of finance for MSMEs are trade credits and borrowing from family and friends. The findings also indicate that, except for trade credits and loans from family and friends, most MSMEs were not applying for loans from the external sources or are largely not wholly successful in their application for loan from the lending agencies. The study has identified the problems limiting the ability of MSMEs to obtain funds from the lending agencies to include information asymmetry, lack of collateral, high cost of capital etc. Furthermore, the study recommends that, Government should educate and enlighten owners of MSMEs on its various programmes and schemes aimed at providing finance, and to reduce the conditions and requirements for collecting loans and credits from formal sources to ease access to finance.

**KEYWORDS:** Formal, Finance, Alternative, Funding, Enterprise

### 1. INTRODUCTION

Micro, Small and Medium Scale Enterprises (MSMEs) play a tremendous role in developing economies. They provide employment opportunities to the greater proportion of the workforce and contribute greater proportion of economic activities in the countries. Not only do they make up the vast majority of firms, but they dominate many sectors of economic activity and have been a reliable source of new products and of technological innovation more generally.

Finance has been a major problem bedeviling the progress of MSMEs in less developed countries, and access to it plays a greater role in ensuring the development of the industry and in generating the distribution of the firm sizes with efficiency and effectiveness thereby enabling full exploitation of market. That is, access to finance play an important role in enabling firms to be formed at various scales that were efficient for the industries and market segments, and in enabling them to grow and take advantage of new technological developments and of increases in the size and scope of markets (Salami, 2003).

Micro, small and medium enterprises are undoubtedly the backbone of the Nigerian economy, and by extension the economy of Kano. They act as major job providers, produce a significant part of the total value added, feed the larger industries with their needed inputs, as well as acting as distributors/buyers of their products. Small firms provide a large segment of the lower and middle-income population with low priced consumption of goods and services. Small firms also represent a channel through which small savings are being translated into investments. Small enterprises could become major sources of constant innovation and experimentation and could thereby in some cases change the market structure. SMEs have been viewed as a source of technological progress, especially in new industries (CBN, 2011; Sanusi, 2004).

Despite their enormous potentials for long term growth and development, Nigerian MSMEs are faced with a number of constraints which limit their capacity to operate efficiently and effectively, and therefore the roles they are expected to play in the Nigerian economy is hitched. Of all these constraints, access to funds is the most critical factor stunting their growth and development

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(UNCTAD 2017; World Bank, 2014). Thus, this makes financing SMEs a major catalyst and a key success factor for the development, growth and sustenance of any economy. Having access to finance gives MSMEs the chance to develop their businesses and to acquire better technologies for production, therefore ensuring their competitiveness. However, there is a huge challenge for SMEs globally when it comes to sourcing for initial and expansion capital funds from lending institutions. This necessitate the firms to find many alternative sources of finance.

Although various studies have been conducted to determine the alternative sources of financing available to MSMEs in Nigeria and Kano in particular, there is no known study, to the best of our knowledge that assesses the financing possibilities of MSMEs in Dala Local Government Area. This study attempts to fill this gap by exploring the financing possibilities of the MSMEs operating in Dala. This study therefore sets out to, among others, examine the various financing possibilities of MSMEs in Dala Local Government area, as well as to assess the problems these MSMEs face in the formal and informal financing of their activities.

### **2. LITERATURE REVIEW**

Defining MSMEs have been a challenging task given that there is no universally accepted operational definition for the concept(s). Different countries, people and institutions use different criteria such as size of workforce, size of capital, annual turnover, size of profits, etc, to classify business firms as either large-scale enterprises or Micro, Small and Medium Enterprises (MSMEs). However, for the purpose of this study, Micro Enterprises are defined as those employing 10 or less individuals having a capital of less than ₦5 million; Small Enterprises are those employing more than but fewer than 50 workforce with operation capital above ₦5 million, and Medium enterprises are the businesses employing fewer than 150 individuals.

SMEs financing has always become of interest to researchers and policymakers in Nigeria. Although MSMEs are generally considered to be the backbone of the economy, stimulating the development of the business sub-sector is hampered by several factors, with the most critical one being poor access to finance. As rightly put by Fatai (2009): "In Nigeria, one of the major challenges faced by MSMEs is that of capital to finance their operations". A World Bank report showed that 39% of small scale firms and 37% of medium scale firms in Nigeria are financially constrained. (World Bank report, 2001). Many MSMEs in Nigeria lack the capital to continue their business and they are forced to close shop because they are unable to access the required funds. Every enterprise is financed either through debt or equity or a combination of both. Both types of financing are usually sourced from either the informal finance sector (IFS) or the formal finance sector (FFS). The two fundamental financing concepts of MSMEs, have been identified by previous researchers, scholars and practitioners (Gelinas, 1998; Aruwa, 2004). The researchers identified commercial banks and development banks in the formal sector as the most popular source of finance for enterprises. The informal sector which consists of borrowing from friends, relatives and cooperatives are also important source of financing of especially MSMEs. Another source of enterprise financing is through personal savings.

The informal finance sector consists of informal finance institutions like money lenders, landlords, friends, relatives, credit and savings associations (co-operative societies), esusu, also known as ayo among the Yorubas, isusu or atu among the Ibos, osusu among the Edos, adashi among the Hausas, dashi among the Nupes and etibe among the Ibibios. (Okorie & Miller, 1976). The formal finance sector is made up of formal finance institutions such as commercial banks, microfinance banks, international development agencies etc. (Aruwa, 2004).

According to Baadom (2004), the common sources of financing, including equity financing and debt financing for SMEs in Nigeria include mostly personal savings, informal sources and to a lesser extend loans and advances from the lending institutions and the informal money lenders. Hire purchase is also another important source of financing for Micro, Small and Medium enterprises in Nigeria.

A 2014 World Bank survey on Nigeria's firms showed that although 85 percent of the firms had relationships with banks, not all of them had access to external credit. The larger a firm, the more likely it is to have access to external sources of credit. Almost 100 percent of firms with more than 250 employees have access to credit compared to only 52 percent of micro-enterprises and 80 percent of small firms. Interestingly, over 90 percent of foreign firms have access while just over 70 percent of indigenous firms do (World Bank, 2014).

Secondary financing sources are another alternative. Unfortunately, there are few domestic equity sources, as well as limited sources of export finance, and SMEs' participation in the stock market (Second-tier Security market) is minimal. This is due to their inability to meet the listing requirements as well as their persistent tendency to operate as much as possible in the informal sector. They are also unaware of the advantages of using the stock market as a source of financing. The newly incorporated Bank of Industry is expected to play a very important role in addressing SME financing, monitoring and advisory issues (Baadom, 2004).

The commercial banks remain the formal source of finance for enterprises. Banks have three (3) social and economic functions: to collect and secure savings and other deposits; to finance the economy by handing out credits; and to facilitate payments and

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to transfer funds. Their role is to reduce the gap between supply (the money deposited and potentially available) and demand (the money needed for investment) that exists between idle money and productive investment.

The financial intermediation role of financial institutions has been faulty for a number of reasons (Gelinas, 1998): Inadequacy in building up and securing national savings; bureaucratic obstacles to the financing of small and medium-sized enterprises, inability to establish positive relationships between lenders and borrowers; and absence of risk sharing. Otherwise, the banks offer loans, either by way of term loan or an overdraft. An overdraft is essentially a short-term finance to meet working capital requirement over a few months and cannot be used for long-term investment purposes.

In Nigeria, to improve on the rate at which the formal financial institutions, extend loans to MSMEs, the formal financial institutions have been organized to finance MSMEs through venture capital financing in the form of a Small and Medium Enterprises Equity Investment Scheme (SMEEIS) fund. Venture capital financing supplements or takes the place of credit facilities that the conventional banks are unwilling to give. The provider of the funds may initially part with the funds as a loan, but specifically with the idea of converting the debt capital into equity at some future period in the enterprise. The return from such investment should be high to compensate for the high risk. Venture capital may be regarded as an equity investment where investors expect significant capital gains in return for accepting the risk they may lose all their equity (Golis, 1998).

The Nigerian government's version of venture capital financing of SMEs – SMEEIS, requires all licensed banks in Nigeria to set aside 10 percent of their pre-tax profit for equity investment and to promotion of small and medium-scale enterprises. The goal is to reduce interest rate burden and other financial service charges imposed under normal bank lending. However, SMEEIS's fund has been reported to have attained 20 billion naira but only 8 billion naira disbursed. The reason for the inability of the SMEs to avail themselves of this fund is yet unconfirmed. The apparent lack of investment in the micro-enterprises sub-sector could be informed by the absence of approved guidelines which is still being finalized (Osagie, 2004).

According to Sanusi (2004), a breakdown of the SMEEIS fund investment by sectoral distribution, 68.82 percent went to the real sector while service related investment accounted for only 31.18 percent. This he noted is a sharp reversal from the initial trend recorded under the scheme. The Bankers Committee have allocated the investment of banks with respect to the fund as 60, 30, and 10 percent of their fund in core real sector, service-related and micro-enterprises respectively. Analyzing the geographical spread of the SMEEIS fund, Sanusi (2004) reports that Lagos-based investments have gulped 56.63 percent of the fund, and Abuja and 18 states received the balance 43.47 percent.

Since the banks have demonstrated their inability to assume and manage the interest of Small and Medium-scale Enterprises (SMEs), the informal savings not only do they fill the vacuum created by the official financing system's failure to adapt to the SMEs needs, but they also prepare for new forms of capital accumulation based on solidarity and co-operation.

### **2.1 Synthesis of the Study Gap Identified**

The literature surveyed in the preceding section has detailed numerous sources of financing for SMEs in Nigeria, both private and public sources. But none of the literature surveyed has detailed the sources of financing for the SMEs in Kano, not to talk of the SMEs in Dala local government area. This study will fill this gap of information by focusing on the financing sources or possibilities of SMEs operating within the Dala local government area of Kano State.

### **3. METHODOLOGY**

In order to be able to answer the research questions, this study uses the quantitative research approach and a survey research design for the analysis. One hundred and twenty (120) survey questionnaires were distributed to a sample of (120) SMEs selected from six wards in Dala Local government of Kano State, Nigeria. The selected wards are those with high concentration of both formal and informal small businesses in the local government area. The questionnaire was designed to collect information about the existing financing sources accessed by the MSMEs in recent times. The questionnaire also collects information to speculate on the effectiveness with which MSMEs applied for and secure funding from the existing alternative sources. The last part of questionnaire collects information on the major constraints to the ability of MSMEs to secure funding the existing external sources. The questionnaire is structured to obtain observations that would help answer the research questions. Simple descriptive statistical methods, including tables and charts were employed for the analysis of the data generated from the questionnaires.

### **4. RESULTS AND DISCUSSIONS**

The responses from questionnaires administered to formal and informal MSMEs are presented and analyzed. Out of the one hundred and twenty (120) questionnaires administered to the Micro, Small and Medium Enterprises (MSMEs) in DALA, one

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hundred and seven (107) were returned and usable for the study, and this marked a response rate of 89 percent. The completed questionnaire were processed and the data is presented in tabular form and the percentage.

### 4.1 Business Characteristics

From the results of the analysis, it is found that 64 (60%) are micro enterprises; 35 (33%) were Small-sized enterprises; and 8 (7%) were medium enterprises. From this result, it is obvious that majority of the sampled SMEs are micro enterprise and this is in line with the general distribution of business firms in the study area.

The main activity of SMEs surveyed in DALA were: Construction (14.0%), manufacturing (4.7%), whole sale and retail (38.3%), transportation (27.1%), handcraft (4.7%), artisan (6.5%), and other services (4.7%). Whole sale and retail which include provision stores, medicine stores, gift shops, grain stores (i.e rice, beans, maize etc) take (38.3%) which is the highest percentage of the SMEs in DALA.

About 36% of the participating SMEs were not registered, the remaining 64% were registered as at the time of the study. This shows that majority of the MSMEs in the study area are registered with relevant government authorities and institutions.

The ownership structure of the participating SMEs is as follows: one male owner take the high percentage of (33.6%) then followed by Owners/shareholders with percentage of (27.1%) then, Family/friends (20.6%), then, one female owner with (11.2%) and other businesses take (7.5%). Most of the businesses of the area surveyed are one male owner which has (33.6%)

### 4.2 Access to or Usage of Alternative Sources of Funds

In this section the rate of usage and access to several sources of financing by the MSMEs in Dala Local Government were reported. The results from of the analysis was presented in table 1 below.

**Table 1: Usage of Internal Funds**

Use of Funds	Frequency	Percent	Valid Percent
Valid Used	53	49.5	49.5
Valid Did not use	54	50.5	50.5
Total	107	100.0	100.0

Field Survey, 2023

Table 1 present the level of usage of internal sources of financing by the small businesses owners surveyed. The result revealed that, 53 small business owners representing 49.5% of the respondents have raised additional funding from internal sources during the past 12 months. As can be observed from the table, a slightly higher number of the small businesses surveyed, 54 representing 50.5% have reported not using internal sources of funds during the same period. This finding is in line with prior expectation regarding the means by which small businesses raise funds to finance their operations. Most SMEs reinvest some part of the profit they made during previous financial period to expand their activities or acquire certain desirable assets for the business. The main reason for this is that it is very difficult to raise funds from external sources, especially from commercial banks, thus many small businesses have to rely on the internal sources. The greater proportion of the participating businesses that have not used funds from internal sources might fall under the micro enterprises category because their earning capacity is low and could be just enough to keep the operators going. This finding may point to a strong evidence that internal financing is an important source for SMEs.

**Table 2: Public Grants or Subsidized Loan**

	Frequency	Percent	Valid Percent
Valid Used	25	23.4	23.4
Valid Did not use	82	76.6	76.6
Total	107	100.0	100.0

Field Survey, 2023

Table 2 above shows the number of MSMEs that have raised fund from the government's SMEs financing schemes. Only 25% of the MSMEs surveyed reported accessing funds from the SMEs financing schemes of the government organizations. Majority of the SMEs representing 76.6% have not obtained government grants or subsidized loan in the last twelve months. This is in spite of the fact that the government have been advertising for SMEs to apply for funding under its various SMEs financing schemes.

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**Table 3: Bank Overdraft or Credit Card**

	Frequency	Percent	Valid Percent
Valid Used	31	29.0	29.0
Valid Did not use	42	67.3	67.3
Valid Source not applicable to my firm	34	3.7	3.7
Valid Total	107	100.0	100.0

Field Survey, 2023

Table 3 shows the number of surveyed MSMEs that have obtained funds from the commercial banks in form of bank overdraft. 31 SMEs representing 29% reported obtaining bank overdraft from the commercial banks. 42 SMEs or 67.3% did not use bank overdraft in the last twelve months. While 34 SMEs reported that bank overdraft is not applicable to their businesses which means they do not operate current account.

**Table 4: Bank Loan**

	Frequency	Percent	Valid Percent
Valid Used	16	15.0	15.0
Valid Did not use	51	47.7	47.7
Valid Source not applicable to my firm	40	37.4	37.4
Valid Total	107	100.0	100.0

Field Survey, 2023

Table 4 shows the number of surveyed MSMEs that have obtained loan from banks. 16 MSMEs representing 15% have access to bank loan while 51 respondents representing 47.7% reported that they have not used bank loan in the last 12 months, and 40 MSMEs representing 37.4% reported that, bank loan is not applicable to their businesses.

**Table 5: Trade Credit**

	Frequency	Percent	Valid Percent
Valid Used	82	76.6	76.6
Valid Did not use	25	23.4	23.4
Valid Total	107	100.0	100.0

Field Survey, 2023

Table 5 shows the level of usage of trade credit of the MSMEs in DALA. 82 respondents representing 76.6% used trade credit to finance their businesses, while 25 MSMEs owners representing 23.4%, did not use trade credit in the process of financing their businesses. The result of the analysis revealed that, most of the businesses in DALA have used trade credit as an essential tool for financing their businesses.

**Table 6: Microfinance**

	Frequency	Percent	Valid Percent
Valid Used	22	20.6	20.6
Valid Did not use	85	79.4	79.4
Valid Total	107	100.0	100.0

Field Survey, 2023

Table 6 shows the surveyed MSMEs that have obtained funds from the micro finance banks. 22 SMEs (or 20.6%) reported obtaining microfinance loan. 85 SMEs representing 79.4% did not used microfinance loan in the 12months. The data sows most SMEs did used microfinance loan due to lack of awareness.



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**Table 7: Family/Friends/Other company loan**

	Frequency	Percent	Valid Percent
Valid Used	70	65.4	65.4
Valid Did not use	37	34.6	34.6
Total	107	100.0	100.0

Field Survey, 2023

Table 7 shows the participating MSMEs that have obtained loan from family, friends or relatives. 70 SMEs representing about 65.4% used or collect loan from family, relatives and friends, while 37 (or 34.6%) did not used or collect loan from family, friends or relatives. Which means that, most of the MSMEs in DALA used or collect loan from family, friends or relatives because this is common to the SMEs to finance their businesses.

### 4.3 Effectiveness of MSMEs in securing funding from the lending agencies

**Table 9: SMEs Securing Bank Loan in the Last One Year**

	Frequency	Percent	Valid Percent
Valid Applied and got everything	14	13.1	13.1
Valid Applied but got part of it	17	15.9	15.9
Valid Applied but refused because cost is too high	12	11.2	11.2
Valid Applied but was rejected	9	8.4	8.4
Valid Did not applied	55	51.4	51.4
Total	107	100.0	100.0

Field Survey, 2023

Table 9 shows that only 14 out of the 107 MSMEs surveyed were fully successful when they applied for a bank loan during the past twelve months. 17 MSMEs applied but only got a part of it; 12 MSMEs applied but refused because of high interest rate; and 9 MSMEs were unsuccessful. The greatest number of the MSMEs, 55, representing about 51% did not apply at all.

**Table 10: MSMEs accessing Trade credit in the last one year**

	Frequency	Percent	Valid Percent
Valid Applied and got everything	10	9.3	9.3
Valid Applied but got part of it	18	16.8	16.8
Valid Applied but refused because cost too high	15	14.0	14.0
Valid Applied but was rejected	3	2.8	2.8
Valid Did not applied	61	57.0	57.0
Total	107	100.0	100.0

Field Survey, 2023

Table 10 shows the number of MSMEs that used trade credit in financing their businesses were 10 (or 9.3%) applied and got everything. 18 representing 16.8% applied but got part of it. Also 15 (or 14.0%) applied but refused because the cost is too high. While 3 representing 2.8% applied but was rejected. And 61 representing 57.0% did not applied for trade credit to finance their businesses.

**Table 11: SMEs access of Microfinance loan in the last one year**

	Frequency	Percent	Valid Percent
Valid Applied and got everything	9	8.4	8.4
Valid Applied but got part of it	11	10.3	10.3
Valid Applied but refused because cost too high	17	15.9	15.9

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Applied but was rejected	5	4.7	4.7
Did not apply	65	60.7	60.7
Total	107	100.0	100.0

Field Survey, 2023

Table 11 shows that 9 MSMEs have applied for microfinance and got everything, 11 applied but got a part of it; 17 applied but refused because of high charges; 5 applied but rejected and 65 MSMEs did not apply.

**Table 12: MSMEs accessing other external financing in the last one year**

	Frequency	Percent	Valid Percent
Applied and got everything	13	12.1	12.1
Applied but got part of it	12	11.2	11.2
Applied but refused because cost too high	9	8.4	8.4
Applied but was rejected	15	14.0	14.0
Did not applied	58	54.2	54.2
Total	107	100.0	100.0

Field Survey, 2023

Table 12 shows the number of MSMEs that applied for external financing were 13 representing 12.1% applied and got everything. 12 representing 11.2% and applied but got part of it. 9 (or 8.4%) applied but refuse because cost is too high. While 15 (or 14.0%) applied but it was rejected, and 58 representing 54.2% did not applied for external source of finance.

### 4.4 Constraints to securing external financing

**Table 13: Factors constraining ability to get external funding**

	Frequency	Percent	Valid Percent
Inadequate information	22	20.6	20.6
Insufficient collateral or guarantee	22	20.6	20.6
Interest rate	29	27.1	27.1
Interest rate or cost too high	8	7.5	7.5
Reduced control over the firm	6	5.6	5.6
Financing not available at all	20	18.7	18.7
Total	107	100.0	100.0

Field Survey, 2023

The result in table 13 shows that MSMEs in Dala local government face a number of constraints to accessing external funds. The major of which is interest rate, inadequate information and insufficient collateral. Others include non-availability of the finance, high cost and reduced control over the firm.

### 4.5 DISCUSSION OF FINDINGS

The characteristics of the participating MSMEs reveal some interesting findings. The results obtained from the analysis of the survey data reveal that the small businesses in Dala are dominated by the micro enterprises which make up about 60% of the participating MSMEs. This finding sufficiently fits the economic characteristics of the area as the intensity and prevalence of industrial activities is low, and thus most businesses (including the registered ones) are either owned by individual proprietors or individual families, implying low capacity to operate in large scale. The results also revealed that Dala MSMEs are engaging in virtually all the major categories of business activities including manufacturing, wholesale and retail, artisanal jobs, construction, manufacturing, whole sale & retail, transportation, handcraft and other services to business or persons such as consulting firms, business centers, etc.

The results from the analysis of data indicate that certain proportions of the participating MSMEs have used the listed alternative sources of financing in the last one year. Internal sources were used the most within the period under consideration, with 53 SMEs

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out of 107 reported using the source. The external sources have also been utilized, but on a much lower scale. The best sources of financing for the surveyed MSMEs include Trade credit with 82 (76.6%) of the businesses reported using the source; loan from family and friends (65.4%). Less than 30% of the surveyed MSMEs have reported accessing funds from all other sources. This indicate that small businesses in Dala Local Government area have low usage rate of the available sources of finance.

The results of the analysis also shows that a greater proportion of the MSMEs who applied for external funding from both public and private agencies have been less successful in their application. For instance, only 14 (13.1%) MSMEs have applied for bank loan and got everything they wanted in the last one year. Others, seventeen (or 15.1) have applied but got only a part of it; twelve found the cost too high and refused; and nine MSMEs application for a bank loan were out rightly rejected. Similar situations were observed in the MSMEs application for funding from all other external sources including the public grants and subsidized loans. From the results of the study, it is found that the following affecting the ability of MSMEs to secure funding from the external sources include inadequate information, insufficient collateral or guarantee, interest rate or cost too high, financing not available at all. These factors fall within the broader list of factors constraining the ability of MSMEs to raise funds in Nigeria.

### 5. CONCLUSION AND RECOMMENDATIONS

The findings of this study revealed that the best alternative sources of finance for MSMEs in Dala include trade credits, loans from family and friends and the internal sources. The findings also revealed that fewer MSMEs are wholly successful in their application for financing from both public and private sources. Lastly, the study has identified some of the major problems affecting the ability of MSMEs to finance their operations from external sources, including information asymmetry, lack of collateral facilities and high interest rate.

Base on the findings of the study, the following recommendations were drawn:

- i. Financial institutions should reduce interest rate to enable the MSMEs to access the loans at an affordable rate.
- ii. Government should intensify effort to educate and enlighten owners of MSMEs on its various programmes and schemes aimed at providing finance.
- iii. Conditions and requirements for collecting loans and credits from formal sources should be reduced by the government and financial institutions in order to ease access to finance.

### REFERENCES

- 1) Aruwa, S.A.S (2004), *The Business Entrepreneur: A Guide to Entrepreneurial Development*, Scopy Press, Kaduna.
- 2) Golis, C. (1998) *Enterprise and Venture Capital: A Business Builder and Investment Handbook*, 3<sup>rd</sup> edition. Allen and Urwin Business/Finance, Australia.
- 3) Gelina, J.B. (1998). *Freedom from Debt: The re-appropriation of development through financial self-reliance*. University Press, Dhaka-Ottawa
- 4) Osagie, C. (2004), "SMIES mostly Targeted at Real Sector- Sanusi", *Industry Column*, Thisday, Vol. 10, No. 3243, Page 25
- 5) Sanusi, J. (2004), Paper presentation at the National Summit on Revamping Small and Medium Industries, Thisday, Vol. 10 No. 3243, page 25
- 6) World Bank (2014): *Nigeria Enterprise Survey, 2014*; World Bank Group, New York, U.S.A
- 7) Baadom, S. B. (2004). *Fundamentals of Small Business Management in Nigeria*. Port Harcourt: Ano Publications.
- 8) CBN (2011). SMEs financing in Nigeria. Retrieved on the 11th of January, 2011 from <http://www.cenbank.org> CBN (2012). Development finance. Retrieved from <http://www.cenbank.org/devfin/acgst.asp>.
- 9) Fatai, A. (2009), *Small and medium scale enterprises in Nigeria: the Problems and prospects*. Retrieved on the 22nd of January 2018 from <http://www.thecjc.com/Journal/index.php/econ>.
- 10) Oyelaran-oyeyinka, B. (2010). FSS 2020: international conference on SME: issues, challenges and prospects. Retrieved 12th of January 2018 from <http://www.cenbank.org/fss/wed/sme>
- 11) Salami, A. T. (2003). *Guidelines and Stakeholders Responsibilities*. In L. Training Centre (Ed.), *Central Bank of Nigeria CBN* (Vol. 4, pp. 45–60). Lagos.



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## Evaluation from the Perspective of Standardized Tests (Pisa) at the Pre-University Level of the Dominican Republic



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### INTRODUCTION

The Dominican Republic faces great challenges in pre-university education and one of them is the evaluation culture. Evaluation as a systemic process is an added value to educational quality to a large extent, to its human capital, and to achieve success in a changing world. Recent studies have shown that achieving better educational outcomes and measurements provides considerable benefits for individuals and for society as a whole (OECD 2010a, 2010c). This ensures the achievement of effective measures of student performance and development and, therefore, educational performance. Reliable and valid measures of school performance can serve as a basis for educational policies and programs and their accountability, school improvement processes, and so that families and society as a whole have more information about the effectiveness of educational systems.

### What is PISA and what does it evaluate?

The Program for International Student Assessment (PISA) is a study by the Organization for Economic Cooperation and Development (OECD) with the objective of evaluating the reading, mathematical and scientific skills of 15-year-old students, who are close to completing compulsory education in each of the participating countries. The purpose is to identify whether they have acquired the key knowledge and skills necessary for full participation in modern society. PISA tries to answer the question: what is important for citizens to know how to do? The evaluation has been developed since 2015 and is applied every three years, with emphasis in each round on one of the areas evaluated as can be seen in the following table.

Table 1. Focus on PISA cycles, 2015 – 2022

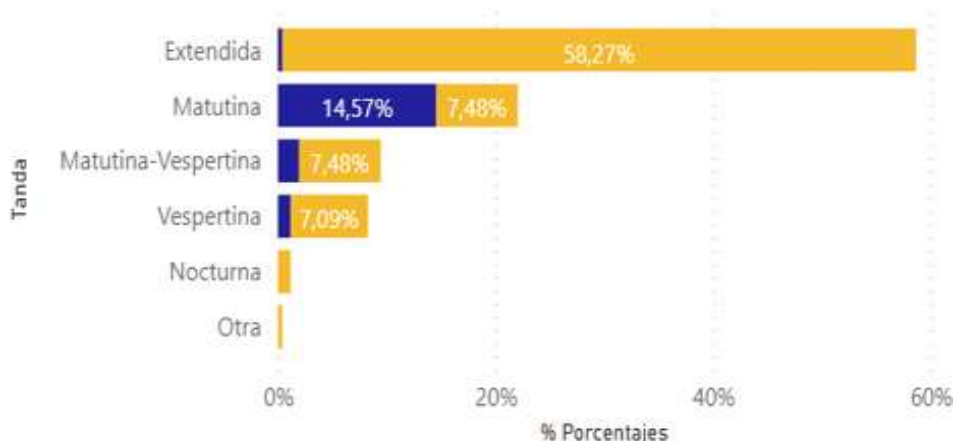
Period	Domain
2015	Sciences
2018	Reading comprehension
2022	Math

Source: Own elaboration with data from the PISA portal, 2022.

For the cycle in PISA 2022, the main domain and focus is Mathematics.

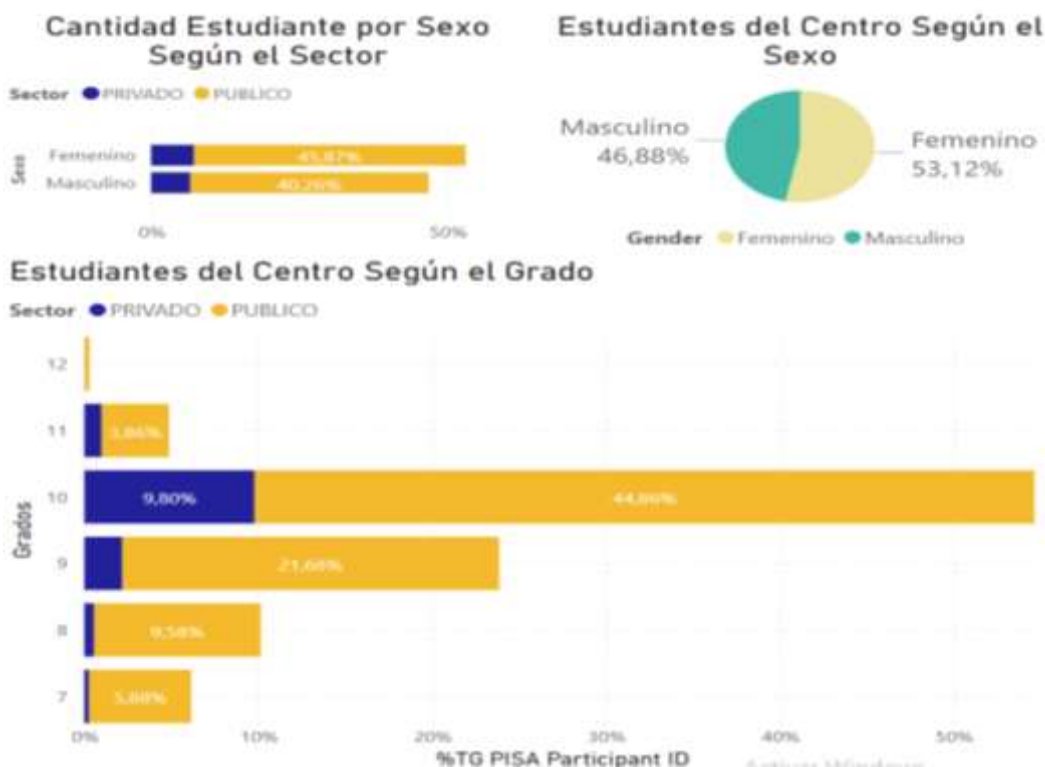
Approximately 82% of the educational centers included in the sample for PISA 2022 correspond to the public sector.

Illustration 2. Dashboard educational centers by PISA 2022 batch



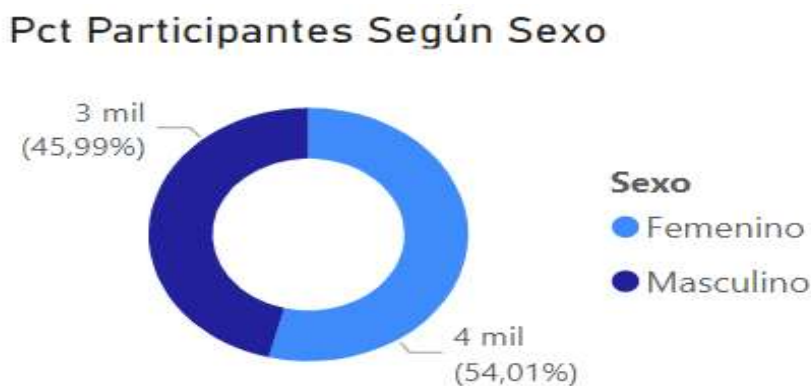
Source: PISA 2022 Dashboard, Department of Evaluation.

Illustration 3. PISA 2022 general information dashboard



Source: PISA 2022 Dashboard, Department of Evaluation.

Illustration 4. Dashboard of students by sex PISA 2022



Source: PISA 2022 Dashboard, Department of Evaluation.

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Illustration 5. Student participation trend



Source: PISA 2022 Dashboard, Department of Evaluation.

The participation trend of the students participating in the pilot study of the PISA 2022 Test maintains an upward trend in a positive sense.

Illustration 6. Student participation rate



Source: PISA 2022 Dashboard, Department of Evaluation.

Thus, in this cycle, the number of questions that are evaluated in that area allow not only to measure the domain of the area in general, but also to measure the students' abilities in different competencies within said domain. Additionally, the different questionnaires of associated factors (e.g., students) include questions that seek to inquire more about the context of the teaching of the emphasis area in said year. It is a uniform demonstration organized by the Organization for Economic Cooperation and Development (OECD) made up of associated and non-associated countries of this institution.

The PISA assessment program was promoted around 1997 and 1999 with the participation of 28 OECD member nations, plus four non-member countries. This program is not a tool to evaluate the trajectory of nations that have been exported to others, but rather it has been developed in cooperation with the same countries where they should be applied, contributing to universal attention to the approaches of testing and cultural appropriateness of the examples used in such interventions.

The evaluations were applied in various cycles: 2000 and 2002 were the first cycle with the integration of 43 countries; In 2003, the second cycle covered 41 countries. Finally, in 2006, 57 countries were included for the third cycle and the following ones were carried out from 2009 onwards. (ODCE, sf: 4-5)

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### Overview of previous cycles

Our country participates for the third time in this type of study. In this PISA 2022 cycle, Creative Thinking is added as an innovative component and is defined as *“the competence to generate, evaluate and improve ideas in a productive way, which can generate original and effective solutions, new knowledge and a striking use of the imagination.”* Creative thinking can positively influence students' academic interests and achievements, identity, and social-emotional development by supporting the interpretation of experiences, actions, and events in novel and meaningful ways. Beyond the classroom, creative thinking can help students adapt to a constantly and rapidly changing world. Supporting students' creative thinking can help them contribute to the development of the society in which they live, today and as future workers: organizations and societies around the world increasingly rely on innovation and knowledge creation to address challenges emerging and complex, giving urgency to innovation and creative thinking as collective enterprises (OECD, sf). Creativity is not something that should be present in the school curriculum only when it comes to drama, music, art and other creative subjects, but creative thinking should encompass all of school life, infusing the way in which they learn the human and natural sciences (The Guardian, 2019) . Periodically every three years, it becomes one of the most severe and prestigious in the world. These estimates are made for high school students aged approximately 15 and 16, who are in the fourth grade of high school. They correspond to the student delegation that is contemplated in public and private educational centers throughout the national territory. (IDEICE, 2020:2)

The PISA test examines three specialties of interest: reading comprehension, mathematics and science

Eventually, the investigations implemented in the PISA Test information sent by the OECD carry out their models taking into account only one year and one country due to the difficulties in managing the database, because it has a hundred qualitative and quantitative variables. . Therefore, a brief review will be made of the evolution of the PISA test in the periods that have been carried out until the preparation of this research.

Around the year 2000, the analysis began with assessments of reading, mathematics and science skills. Starting with 32 member countries of the Organization for Economic Cooperation and Development (OECD), the vast majority. These areas were defined in accordance with the: content or structure of the knowledge that students need to achieve in each of the areas (become familiar with scientific concepts or various texts); the transformations that must be implemented (obtaining written information from a text); and the scenarios where knowledge and skills are applied (decision making related to the circumstances of each individual's personal life or the understanding of world events) (Cruz, 2020:25-26)

was carried out, where the way in which the exams were graded was presented in detail , since PISA presents an average score scale of 500 and a standard deviation of 100 in the three areas mentioned for the evaluation. For these reasons, scientific competence has a special relevance, because it is evaluated through units composed of a stimulus that pursue the tasks associated with them. From this point of view, students have a certain amount of time to understand the assigned materials being used for the evaluation of various aspects of their academic performance.

**Table 2. Mathematics students learning time (hour per week). PISA 2018.**

Hours	Fi	%
0 - 5	976	74.50%
6 - 10	272	20.76%
11 - 15	38	2.90%
16 - 20	16	1.22%
21 - 25	4	0.31%
26 - 30	2	0.15%
31 - 35	1	0.08%
36 - 40	1	0.08%
Total	1310	100%

Source: Own elaboration with PISA 2018 database.

According to estimates, the majority of Dominican students dedicate less than 5 hours a week to the study of Mathematical Sciences.

## **Evaluation from the Perspective of Standardized Tests (Pisa) at the Pre-University Level of the Dominican Republic**

For the year 2009, the readings were analyzed, showing improvements thanks to the increase in educational levels in the distribution of performance. This means that in a period of nine years the gaps in inequalities in knowledge were closed. In this stage, reading skills, reading knowledge, attitudes and reading learning plans were evaluated.

By 2012, results showed that nations improved their performance, regardless of their status or culture. This is because they were directed to countries that had inadequate performance and that, in turn, obtained a high percentage of students in mathematics. For these reasons, the countries decreased in persistence in the periods analyzed. (Cruz, 2020:25-26)

Finally, in 2018 the center of appreciation was reading comprehension, the objective of which was to evaluate to what extent students can locate, select, interpret, integrate and evaluate data from various texts that manifest situations that go beyond the classroom of the study center. The PISA assessment includes different optional tools for countries, such as financial education.

### **Domains and skills evaluated in PISA**

Rivera Machado (2018) comments that the PISA tests are not only evaluations for specific knowledge in each educational center, but for the measurement of the skills that young people should have for their age, associating the failures of everyday problems. For these purposes, three subjects were selected: mathematics, reading and natural sciences, which bring together people's aptitudes.

Regarding reading, it is not necessarily necessary to understand whether people can read or not in a technical sense. It is based on whether students can elaborate, expand and reflect on the connotation of what they read through a wide range of texts associated with various internal and external situations in the school environment. Reading is not only considered a skill acquired since childhood, but is observed as the sum of strategies, knowledge and skills built by people throughout their lives in various scenarios in interaction with others.

In the domain of mathematics, students' abilities are evaluated to take advantage of mathematical skills and confront future adversities. They are based on reasoning, analyzing and communicating ideas effectively through approaches, formulations and resolutions of mathematical problems in a variety of conceptualizations and situations. For the Organization for Economic Cooperation and Development (OECD), the talent of people in identifying and understanding their role in the world consists of well-formed mathematical points of view and united with current and future needs, forming a curious entity.

One of the skills that young people must obtain is the deduction of accurate and cautious conclusions from the evidence and data presented, examining arguments from the facts written by others and differentiating opinions from hypotheses supported by evidence. Science has a role, because it provides rationality in the verification of ideas and theories against real evidence. With such statements, we do not want to notify that science excludes creativity and imagination. (Cruz, 2020:57-58)

Several countries such as Chile, Peru and Argentina have taken charge of the changes in their educational policies, facing new perspectives on the issues of Educational Quality Evaluation, because educational centers have acquired a certain independence for the preparation of its Institutional Educational Project, which contemplates the real needs of the students in the family environment, the level of schooling of their parents, their income, the social context, the infrastructure of the educational institutions that play a vital role importance, resources, among others. On the other hand, the curricula, the pedagogical methodologies and the supervised evaluation of a defined educational policy. (Rivera Machado, 2018:975-976)

### **Those who participate**

Borrero Forero (2020) believes that according to the Organization for Economic Cooperation and Development (OECD), 74 of the 80 countries that signed up for students to be fruitful, the PISA test provides higher education for free. The State plays an important role in providing this service, since education is considered a vital resource in the formation of capital and growth in the economy. When considering that human capital generates growth based on the production of countries, instruments are sought to measure the levels of knowledge that individuals have.

In order to compare the results between countries, PISA must examine that the populations are similar, but disagreements in variables such as their nature and duration in educational levels, among other additional variables, prevent international similarity. To achieve this goal, specific ages have been established between 15 and 16 years apart from the type of institution to which they belong, the degree they attend totally or partially, excluding those who are not registered in educational institutions. This type of test arises with the purpose of seeking the creation of appropriate educational policies to create and improve the quality of learning and to serve as input for progress in different educational systems throughout the world.

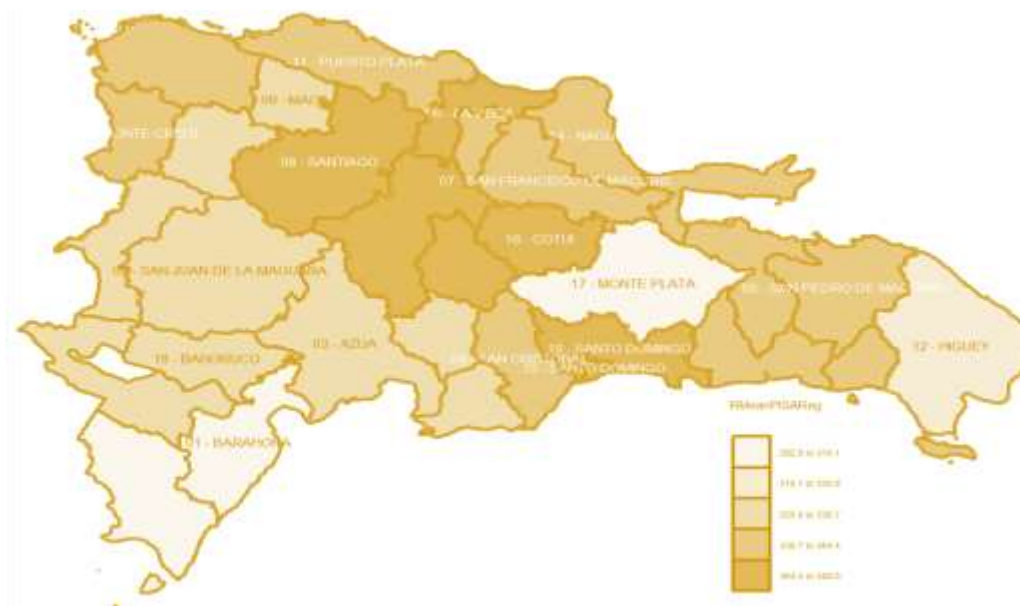
The PISA test assesses students who have completed approximately 10 years of compulsory schooling, measuring academic performance over the years. Also, monitor students' overall productivity to see if they have been improving in their performance, persevering, or slowing down over time. On the other hand, progress towards educational objectives is reflected, increasing achievements and reducing inequalities. (Cruz, 2020:8-9). The PISA tests involve partner nations and the collection of students to show a random verification for public and private study centers. Its purpose is to analyze the educational quality offered to



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students, addressing various results that have been obtained from these arguments from 2012 onwards and the consequences that these results have included and their impact on educational institutions, as well as public policies. deployed by the government. (Borrero Forero, 2020:6)

In the Program for International Student Assessment (PISA), the group under study are students aged 15 to 16 who are enrolled in educational centers, whether public or private, at educational levels of 8th grade or higher. elevated (2nd, 3rd and 4th). Educational institutions are classified by a national list of eligible establishments through systematic sampling, with probabilities of being selected proportional to the size of the school. In the first instance, schools are divided into mutually exclusive groups, with homogeneous characteristics. (INEE, 2020).



**Graph 1. General PISA 2018 Test Score by Dominican Educational Regional.**

**Source:** Own elaboration with PISA 2018 database.

### Who selects the sample of schools

The population under study in the PISA tests are students who range between the ages of 15 and 16 at the time of starting the testing period and who are attending study centers located in the country who are in the 7th grade or at higher levels. On the other hand, public and private educational centers participate. These are applied to a maximum of 35 students of the established ages and who are studying these levels. They can be at various levels from the first grade of secondary school (formerly 7th grade) to the sixth grade. On the other hand, in the Dominican Republic, students should be studying the fourth grade of secondary school, which is considered within the modal grade.

To select the sample it is carried out in two stages:

1º The option of educational centers is concentrated by implementing the methodology of probability sampling proportional to the size of the school (enrollment of 15-year-olds of school age).

2º A maximum of 35 students who meet the eligibility criteria are selected in each center.

These students in the samples receive a final weight that notifies the amount of the population they represent and incorporates the school weight (the inverse of the probability of school selection) as the weight of the student within the study center (the opposite of the probability of student selection). (IDEICE, 2020:8-9)

As in previous cycles in the Dominican Republic, in PISA 2018 the sample was selected using a random statistical method by sectoral strata (public, private and/or semi-official) and batches (morning, extended, night and/or evening). In the 2018 cycle, PISA evaluates 242 educational centers and 5,699 Dominican students.

The processes for the application and implementation of PISA are carried out through work stages, which include tasks such as sample selection, design, planning, storage, requesting technological resources for application, coding, among others |

Illustration 1. National Team



Source: Own elaboration, 2022.

**Descriptive analysis of Mathematics items in PISA 2018**

For the 2018 cycle, we worked with 40 items released for Mathematics. They involve open and closed responses regarding general mathematical knowledge, interpretation of results, use of concepts, facts, procedures and mathematical reasoning.

**Table 3. Frequency of items released in PISA 2018: Mathematics (Score answer)**

	Tags	Fi	Percentage
	Total Coded	32,732	14.42
<b>Lost</b>	Not reached	2,989	1.54
	Does not apply	7	0.00
	Unanswered	2,029	1.04
	Losses through the system	189,252	97.41
	Total NA	194,277	85.60
	<b>Total</b>	<b>226,960</b>	<b>100</b>

Source: Own elaboration with PISA 2018 data Database .

Of the total number of items applied to the 5,699 Dominican students, approximately 2,029 presented empty values (1% of the Total NA). The majority of the responses (85.6%) are categorized as NA or *Missing Values responses* , while the total number of satisfactorily coded items represents 14.42% of the total items implemented in the 2018 PISA cycle for the Mathematics domain.

**How parents get involved**

The involvement of parents in the educational training of their descendants has a certain impact on the improvement of their learning. By getting them involved most of the time, communicative links could be created between members, strengthening the education of their sons and daughters. Aguirre Huamán (2018), This is why in PISA the occupations of the parents of the participating students are correlated through a context questionnaire, allowing a better construct to be equated.

**Parent involvement**

Echevarría Fernández (2020) refers to the fact that parental participation is essential for the growth of students, because they are the ones who will build the foundations for maintaining the stability of their descendants and for them to have better development in their educational training. Parental cooperation is an uncertain expression, because it addresses teaching and education at home to their commitment to school activities. Therefore, the upbringing and development of the child includes aspects of its performance in a specific relationship, as well as other generic practices (feeding, care, and so on). Among the activities are sports competitions, conducting parent-teacher interviews and attending continuing training courses.

Parental involvement has become a determining factor that is reflected in the cognitive development and academic success of the student, influencing the instruction of positive behavior, instilling values at school, improving self-esteem and raising the educational aspirations. Such participation is inseparable at any stage of people's growth, due to cultural and societal variations. On the other hand, they are the authors in the lives of their offspring, because from the moment they begin their life cycle, their presence is essential for their growth, development and formation.(Echevarría Fernández, 2020)

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Ventocilla-Aquino (2019) reports that, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO), parents should be actively included in the formation of their children's learning. Also, they generate agreements with study centers to provide continuity and strengthening of what has been learned. (p.131)

Parental support is a process of accompaniment and complicity of parents with their children regarding their school activities and providing socio-emotional resources related to the student's self-direction processes. In other words, it allows them to obtain the satisfaction of their emotional and affective needs and engage in their school activities on their own. Being able to feel part of the school community and enjoy healthy relationships with their parents and teachers, having better chances of having adequate academic performance and being satisfied with their life. (Ventocilla - Aquino, 2019:131)

Ventocilla – Aquino (2019) defines parental involvement as a “*process of accompaniment and involvement with their children regarding their school activities*” (p.132). It is characterized by establishing the appreciation that children have of the protection received from their parents. For the study, it is a discrete quantitative variable with a ratio scale, presenting the following dimensions: paternal support for autonomy, maternal support for autonomy, paternal involvement and maternal involvement. This range of values is assumed by the variables from 1 to 4, since a higher score will indicate a higher level of support for the autonomy and involvement of parents.

This type of support is related to academic performance. In other words, by getting involved, parents promote the independence of their children's school activities, positively reflecting productivity in the study. Therefore, the student will develop personal means such as self-direction, demonstrating initiative in their academic tasks, waiting for them to be applied in any situation that may arise throughout the process of their life, both work and sentimental. (Ventocilla - Aquino, 2019:135)

### **The concept of family involvement in upper secondary education**

Infante Blanco & Padilla González (2019) argue that the academic fruits of students are produced by various processes and institutions, where individual characteristics, family and school interactions and their relationship between one and the other, united to obtain materialized learning. for educational success. In other words, the complicity of the family is one of the factors associated with learning, which is why it is not limited to thinking that it is only exclusive to the support of the family, without taking into account the remaining actors and elements. (p.3)

A brotherhood has been established between family intervention and academic results, considering that these lead to having positive effects to achieve the expected learning, because it positively influences the improvement of other points of view of educational centers and in the growth of students and communities. On the other hand, it is considered multidimensional, which includes various actions that can be understood as the same concept. Also, inconsistency is generated because the actions are aimed at improving the teaching of students or managing the resources of educational centers.

In high school, parental involvement decreases for the following reasons:

1º They assume that as children grow, they need more freedom and less guidance from them, reducing their participation.

2º They consider that they do not excel in the content, they do not intervene in their children's schoolwork.

In high school, the thought predominates that the family is more involved, there is a probability that they will be supportive for the educational training of the students and not everyone has the notion of what they should do to support them. Only a differentiation is perceived between family participation in the activities organized by the educational center (family-school relationship) and involvement in the acts that enable the learning and development of students in high school.

Infante Blanco & Padilla González (2019) point out that the literature has focused its attention on the involvement of fathers, mothers and guardians for school success, giving rise to the conceptualization of **Parent Involvement**. The studies are focused on basic education, where they have greater participation. On the other hand, at higher levels, apart from parents, siblings, grandparents, uncles, cousins, among others, they are integrated into the students' school processes, providing training in family involvement.

The research that has been carried out on family involvement and academic achievement by students arises from the benefits of social disciplines by observing the structure and functioning of families in relation to the scores obtained by the students of educational centers. With the participation of parents, it has become an important sector in educational research, associating family presence as factors of success in schools, transforming the way of seeing them and confirming that they are active entities for the proper functioning of the school. (Infante Blanco & Padilla González, 2019:4)

### **Family practices that contribute to the academic achievement of high school graduates**

Infante Blanco & Padilla González (2019) establish that family involvement occurs in two important conditions:

1st Interest of schools in working together with families.

2º Value of schooling by families. (p.9)

## **Evaluation from the Perspective of Standardized Tests (Pisa) at the Pre-University Level of the Dominican Republic**

These provisions can motivate harmony between families and schools, to obtain the results expected by school communities. They would be ideal for a family – school relationship. However, it must be taken into account that they do not occur with the opportunities, frequencies and intensity that are required for such purposes, giving rise to various levels of affinity between family members and educational centers, especially in Latin American countries or in developing countries . of development, where there are great inequalities in society.

Researchers study family interventions through approaches, difficulties in determining generalized practices that intervene in academic achievement. Also, they agree with the involvement in the period of adolescents who constantly change in the need to evolve and reaffirm their autonomy, the parents' beliefs about the form of education, and the conditions established by the high school to relate them with their families. . On the other hand, those who attend basic education are more influenced by family values in their first years of life, unlike those who are in higher grades, convinced of their strengths and weaknesses in the educational field. Therefore, family intervention in high school is of certain importance to achieve the established academic objectives, although practices are exchanged to give way to the development of freedoms for adolescents.

The transformations in learning, educational success operates as an indicator that visualizes the levels of learning in the student, covering various subjects, its meaning depends on the indications by which they are arranged, focused on the training processes, in the curriculum and translate into declared learning, grades, standardized test scores, school permanence and completion of educational degrees. These criteria have something in common, which is academic achievement, such as the effort and cognitive capacity of the students. It is appreciated that, in family involvement, academic achievement shows that the student is increasing his potential, supported by family conditions, which in turn provide ideal recreation for such purposes. (Infante Blanco & Padilla González, 2019:9)

### **Associated factors**

The factors detected by PISA that have been considered important with the expected results, such as economic, social and cultural factors. Also, allied to the characteristics of the schools, the students, and the social, economic and cultural environment.

### **Socio-economic and Cultural Status Index in PISA (ISEC)**

To establish points of view about the social and family beginnings of the students, a social, economic and cultural classification (ISEC) is built, reflecting the professional activity and educational level of the parents and the resources available at home.

### **Influence of the Social Economic and Cultural Index on the results**

The impact that the social, economic and cultural index can have on students' compliance can be established. Those of nations in which the increase in the ISEC causes fewer variations in the results are considered equitable systems, since a system is considered equitable if its effect is presented on a smaller scale.

There are cases where nations with a reduced ISEC achieve results close to half of the European Union and the OECD, such as Spain, Portugal, Poland and Latvia. Also, there are extreme cases where the correlation between results and ISEC is not executed, such as in Iceland, which, being one of the nations with the best ISEC, obtains results lower than expected.

### **Factors explaining the use**

Pinkasz (2021) mentions that the study begins with the assumption of the existence of a set of factors that imply the use or not of the evaluation results. It is based on a generalized synopsis that identifies the institutional, technical, political and communication factors according to an original ordinance established by several regional studies. (p.94)

Institutional factors are understood as the qualities of the institutional design and organizational dynamics that expose the use of the results of the evaluations that have been used. The weight of the trajectory of the institutionalization of evaluation devices and the weight of the coordination modalities have been identified, together with the organizational argumentation that makes it up.

The technical factors are the adequacy of the use of the technical characteristics of the evaluations, because any application is valid for some evaluation, the availability of human and technical resources to process the evaluations and their use, the coupling between the cycle of the usefulness of the information and the cycle of use of the results.

Regarding political factors, the most relevant is the set of pressures exerted by the various actors in the educational system to inform about the functions of evaluation around the uses of training uses. Said entertainment is a conflict to order a model of governance over the system, articulating ideological factors, confrontations over the legitimacy of the uses of the results, in their execution, as well as the modalities of communication.

The communication factors are perceived according to the capacity of user construction and the interpretive needs and the use of the data obtained by the representatives. (Pinkasz, 2021:94-95)

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### **Adaptive software How does it work?**

Diverse positions have been found, since some resort to the use of computers for the development of large-scale evaluations, to benefit from the virtues offered by this variant. It presents certain advantages, among which are identified the standardization of applications, efficiency in data processing, feasibility of coding responses in an automated manner and creating adaptive tests. Also, they facilitate the coding of the respondents' responses and the reduction of errors in the process, promoting interactivity and inclusion of items. From the other point of view of the student, it allows for quick results, a reduction in the stress factor and is more consistent in terms of internal and external validity.

The facilities allowed by the CBA and the INEE position are guided by three aspects:

- 1º Evaluation through computers, favoring the evaluation of skills, such as collaboration and problem solving. This type of position is compatible with those who study the phenomenon of the outcome and solution of collaborative problems.
- 2º The use of pencil - paper is exceeded by not allowing the measurement of authentic tasks, being a rigorous assertion, because it calls into question the validity of the results of previous cycles assuming that only the CBA allows a true evaluation contradicting the reports published by the INEE.
- 3º Computer evaluation allows the interactive adaptation of young people, who agree with the previously mentioned positions. (Jiménez Moreno, 2018:723-724)

### **How does it apply?**

The PISA tests have been administered triennially (every three years) since 1998, selecting a sample of around 4,500 and 10,000 students per country who are completing their secondary studies, with an approximate age of 15 and 17 years. It lasts two hours and only test booklets, pencil and paper are needed.

### **How is the test given?**

The tests are given by the Dominican Institute for Evaluation and Research of Educational Quality (IDEICE), who is the body in charge of applying the evaluations, and has the responsibility of setting up a mobile laboratory with Laptops with software containing the tests established for the students. .

### **Open question coding process**

#### **What type of questions are used in the PISA test and why?**

The PISA tests use multiple choice questions that are the distinctive features of their evaluations, since they are effective, reliable and based on solid and scientific analysis. On the other hand, it gives value to the questions because they have a variety of formats, including the highlighting of a word in a text, data relations and making various selections in the drop-down menus, and where a third of the questions are open.

Students take the situation test that provides data about themselves, their dispositions in learning, and at home. Also, school directors are assigned a form from their educational centers. In turn, nations can choose from a variety of optional questionnaires from the PISA tests (computer familiarity, career, and parental education questionnaires). Also, they decide to gather as much information as possible through national tests. With these data, the connections between student productivity in PISA and its causes (migration, gender, socioeconomic context) are explored, as well as students' positions regarding school and their points of view regarding learning.

Students also answer a background questionnaire, which provides information about themselves, their attitudes toward learning, and their homes. Likewise, educational center directors are given a questionnaire about their centers. Countries and economies can also choose to administer several optional PISA questionnaires: the Computer Familiarity Questionnaire, the Careers Questionnaire, and the Parental Education Questionnaire. The PISA 2018 questionnaires can be consulted here. Likewise, many countries and economies choose to collect more information through national questionnaires. The information collected helps countries explore the connections between student performance in PISA and factors such as migration, gender, and students' socioeconomic background, as well as students' attitudes about school and their approaches to school. learning. (FP Education, 2019:10)

### **Who prepares the test questions?**

The questions are prepared by the participating countries, who present their packages that are added to the points developed by the experts and contractors of the Organization for Economic Cooperation and Development (OECD). Subsequently, they are reviewed and verified internationally to prevent cultural and translation biases. Only the questions that are used by PISA. On the other hand, a pilot test is carried out in all participating countries. If it is proven that they are easy or difficult, they are eliminated. (FP Education, 2019:10)

## **Evaluation from the Perspective of Standardized Tests (Pisa) at the Pre-University Level of the Dominican Republic**

### **Challenges**

For the year 2020, the COVID-19 pandemic caused the closure of educational institutions globally, forcing teachers and students to adapt to online teaching and learning, which became a challenge for educational authorities. Education in all nations. This situation created great inequalities due to the technological availability in schools and the capacity of teachers to efficiently use these tools in information and communication. (OECD, 2020)

In the publications *Effective Policies, Successful Schools*, the results of the most recent tests are compared, with the collaboration of 600,000 15-year-old students in 79 countries. By 2018, there was around one computer in schools, which reported that they did not have the necessary power in terms of capacity, massively affecting students globally. For these reasons, inequalities and deficiencies prevail in educational systems throughout the world and especially in developing countries. This situation affects abandoned youth, where nations should guarantee that educational centers have the resources so that their students have the opportunity to learn and achieve success. Teachers have certain capabilities for using technology, since they have the technical and pedagogical skills to incorporate digital devices into their subjects.

In the PISA report they are related to other political aspects and school equalities, where the disparities between favored and disadvantaged schools linked to the limitation of teaching staff and material resources, which include digital ones, are exposed. For these purposes, it must be ensured that all schools establish adequate and quality resources, as well as ideal support for students so that they have equitable opportunities to learn and succeed at the school, professional and personal level. (OECD, 2020)

Jiménez Moreno (2018) stipulates that the use of a computer for each student represents a challenge at the level of logistics and infrastructure, because to administer the tests it is necessary to install around 21 computers outside the educational centers. Due to the low probability of functional computers in the classrooms or that the components had the specifications established for the software in the execution of the tests. (p.718)

Another of the challenges and additional challenges to the repercussions of information, infrastructure and economic issues, aspects related to the methods implemented for this type of tests are contemplated. One of the issues of greatest interest is the development of adaptive evaluations to have certain influences on the performance of those who support them. This is because it leads to analyzing the way in which the tests are applied. In other words, the aim is to investigate whether the application using a computer or pencil and paper generates an impact on the results. (Jiménez Moreno, 2018:722)

### **CONCLUSIONS**

The PISA program represents great challenges for Dominican education. It is the very characteristic of the application of the program that maintains a unique prestige in the participating countries. Adaptive and computer-based tests are one of the great tools provided by the international PISA study for the evaluation of students' competencies. The Dominican Republic has adopted the role of education based on quality and social development by participating in said study. For the purposes of meeting the objectives, educational policies must be promoted by the relevant government entities to guarantee young Dominicans an education forged in key skills for full participation in modern society.

### **REFERENCES**

- 1) Aguirre Huamán, E. (2018). Teachers, fathers and mothers involved in educational work raise the levels of mathematics learning achievement of the students of the IE "Santa Rosa". Degree work. Lima, Peru: Antonio Ruíz de Montoya Jesuít University.
- 2) Borrero Forero, OF (2020). Analysis of the level of educational quality in Colombia, based on the results of the PISA tests in the period 2012-2018. Job. Bogotá, DC, Colombia: Nueva Granada Military University.
- 3) Cruz, D. (May 13, 2020). Determinants of the academic performance of students who participate in the Pisa tests in the period 2000-2015. Degree work. Quito, Ecuador: Pontifical Catholic University of Ecuador.
- 4) Echevarría Fernández, TM (August 2020). Parental participation in the academic performance of the students of the "General Medardo Alfaro" educational unit. Degree work. Santo Domingo, Ecuador: Pontifical Catholic University of Ecuador Santo Domingo Headquarters.
- 5) VET Education. (December 3, 2019). Frequently asked questions about PISA. Obtained from <https://www.educacionyfp.gob.es/dam/jcr:63375528-1716-4821-890e-69ae6fac36ef/faqspisa-esp.pdf>
- 6) IDEICE. (2020). The Program for Student Assessment (PISA) in the Dominican Republic: description, results and perspectives. Santo Domingo, Dominican Republic: Educational Policy Monitoring and Evaluation Unit - USEPE.
- 7) IDEICE. (2020). Dominican Republic in PISA 2018: National results report. Santo Domingo, Dominican Republic: Dominican Institute for Evaluation and Research of Educational Quality (IDEICE).

## Evaluation from the Perspective of Standardized Tests (Pisa) at the Pre-University Level of the Dominican Republic

- 8) INEE. (February 16, 2017). Analysis of the factors associated with student performance in PISA. Obtained from National Institute of Educational Evaluation (INEE): <http://blog.intef.es/inee/2017/02/16/analisi-de-los-factores-asociados-al-rendimiento-de-los-alumnos-en-steps/>
- 9) INEE. (April 27, 2020). Sample selection in large-scale student assessment studies (PISA). Obtained from National Institute of Educational Evaluation: <http://blog.intef.es/inee/2020/04/27/seleccion-de-la-muestra-en-estudios-de-evaluacion-de-estudiantes-a-gran-scale-step/>
- 10) Infante Blanco, A., & Padilla González, LE (2019). Family involvement in high school: a strategy to promote school permanence. *Syntética: Electronic Journal of Education*, 1(54), 02-21.
- 11) Jiménez Moreno, JA (2018). Mistakes of its application by computerized means. *Mexican Journal of Educational Research*, 23(78), 711-731.
- 12) MINERD, (2016). Bases of Curriculum Review and Update. Santo Domingo Dominican Republic.
- 13) OECD. (September 29, 2020). New OECD PISA report reveals the challenge that online learning poses for many students and schools. Obtained from Organization for Economic Cooperation and Development (OECD): <https://www.oecd.org/centrodemexico/medios/pisavpoliticasefectivasescuelasexitosas.htm>
- 14) ODCE. (sf). The ODCE PISA program. What is it and what is it for? Organization for Economic Cooperation and Development (ODCE), 01-33. Retrieved from <https://www.oecd.org/pisa/39730818.pdf>
- 15) Pinkasz, D. (2021). The use of the results of learning evaluation tests in the planning of educational policies in six countries in the region. Buenos Aires, Argentina: Regional Report. Retrieved from [https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef\\_0000379593&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach\\_import\\_2b95edb6-2d5e-4ebe-ad9d-8e0af7a6887a%3F\\_%3D379593eng.pdf&locale=es&multi=true&ark=/ark:/48223/p](https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000379593&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_2b95edb6-2d5e-4ebe-ad9d-8e0af7a6887a%3F_%3D379593eng.pdf&locale=es&multi=true&ark=/ark:/48223/p)
- 16) Rivera Machado, AY (2018). Evaluation is a process that energizes classroom management. *International Congress of Education, Pedagogical and Didactic* (pp. 962 - 981). Colombia: UPTC Institutional Repository (RIUPTC).
- 17) Ventocilla - Aquino, A. (2019). Involvement and autonomy of perceived parental support associated with academic performance in schoolchildren. *Journal of Health Research and Cases (CASUS)*, 4(2), 130-136.



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## The Role of Corporate Social Responsibility in the Sustainability of Tourism Village



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**ABSTRACT:** The COVID-19 pandemic that has hit the world has an impact on health and other sectors such as education, social culture and the global economy. Tourism, which is used as the locomotive of economic development, is the sector that is most affected, especially in Badung district because it sees people's livelihoods depending on the tourism sector.

To improve the economy, the government has made efforts to deal with the phenomena that occur due to the impact of the Covid 19 virus, including by encouraging and motivating state-owned companies (BUMN) to continue to contribute to improving the welfare of the community by remaining consistent and sustainable in implementing Corporate Social Responsibility (CSR) programs.

To correlate the phenomena that occur, especially in the field of funding and assistance through CSR in the tourist village area, and companies in the concept of Community Based Tourism (CBT) and also to grow the community's desire for entrepreneurship in relation to supporting the needs of tourists with a target towards sustainable tourism villages. This paper analyzes the implementation of corporate CSR in the development of sustainable tourism villages in Badung district by upholding the principles of corporate social responsibility (CSR).

The analysis was carried out using mixed methods, namely measuring quantitatively and strengthening the measurement results by sharpening the results with qualitative methods in developing and sustainability tourist villages in Badung regency.

**KEYWORDS:** Corporate Social Responsible, Community Base Tourism, Sustainability

### I. INTRODUCTION

The Covid-19 pandemic which is still sweeping the world has had a broad impact on global health and the economy, especially in 2020, which the world is still feeling. The Covid 19 pandemic not only has an impact on health but also has a huge impact on other sectors such as education, social and culture.

Tourism, which is used as a locomotive for economic development, is the most affected sector by the changes that have occurred due to the Covid-19 pandemic. During the transition from pandemic to endemic, the tourism sector has faced the changes that have occurred so that economic development that has fallen can be revived. To improve the economy, the government has made efforts to deal with phenomena that occur due to the impact of the Covid 19 virus, including by encouraging and motivating state-owned companies (BUMN) to continue to contribute to improving community welfare by remaining consistent and sustainable in implementing Corporate Social Responsibility (CSR) programs.

Corporate Social Responsibility is the social responsibility of an organization for the impact of its decisions and activities on society and the environment.

According to Kotler & Nancy 2005, Corporate Social Responsibility (CSR) is a company's commitment to improving welfare through good business practices and contributing some of the company's resources.

Provisions for the obligation to implement CSR are regulated in legislation. Limited Liability Company No. 40 of 2007, namely that companies are obliged to budget a portion of their profits (profit) for social responsibility towards society and the environment.

Community empowerment through tourism or what is often known as the concept of Community Based Tourism (CBT) is closely related to the tourism development of a region. The empowerment referred to includes absorbing labor from the community around the area where the tourist village is being developed. According to the explanation of several heads of tourist villages in North Badung, 40% - 50% of the total workforce absorbed comes from the local community which is carried out through



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a selection process that is adapted to the community's professional field or can also be provided with appropriate professional standardization training. the need for a place to develop a tourist village. A tourist village is a form of integration between attractions, accommodation and supporting facilities presented in a community structure that is related to the procedures and traditions that apply in the village (Nuryanti, Wiendu 1993). In developing a tourist village, there are 4 components that must be fulfilled, including:

1. Attractions are the coverage of the daily life of the community as well as location settings that can enable tourists to integrate with the local community as part of traditional participation such as dance activities, language learning, traditional or religious buildings.
2. Accommodation, namely some residential areas or buildings developed based on the concept of residential areas that can be used as residences when tourists visit for those who need accommodation.
3. Access, namely supporting infrastructure such as roads, electricity, water, telephone, internet and so on
4. Amenities, namely the institutional system of a traditional village that develops facilities outside accommodation, such as restaurants, souvenir shops, and public facilities such as places of worship, health, parks, etc.

Based on the results of initial observations with traditional leaders and heads of tourist villages in the North Badung area, the problem that dominates the development of tourist villages is funding. The availability of funds owned by a tourist village is one of the determinants for the development of infrastructure and facilities in the tourist village. Tourism or regional infrastructure and facilities are one of the components that form a tourist village (Purwaningsih, Mahagangga, 2018) in the Journal of Tourism Destinations

The management of several tourist villages in terms of funding is very minimal, although there are several tourist villages that have received assistance from third parties, but there are also those that have not received it, where the source of funding comes from the results of mutual cooperation from the village and the management, which is still not sufficient to develop a business for costs. operations and procurement of equipment needed in the field. The community develops their village through mutual cooperation between communities to form a tourist destination village with very minimal funds. In management there is no standardization where one village has different methods to adapt to the quality of human resources in each tourist village.

The development of tourist villages has very effective benefits and value for developing the economy in a traditional village by introducing unique customs that are packaged beautifully so that they attract tourists to come and enjoy the cultural essence that is combined between tourism and activities and the uniqueness becomes a concept that can be sold. Empowerment can also be directed at helping people to help themselves, making society more independent, through a public learning system, which is carried out consciously and voluntarily, and developing its ability to empower other people (Sandiasa & Widnyani, 2017).

According to Bronislaw Malinowski (1884-1942) stated that culture is an effort to maintain continuity of life in accordance with cultural traditions that have been created by ancestors, which emphasizes the relationship between humans and the universe which is generalized cross-culturally, where an interesting village is a village that has customs and way of living with a concept where sustainable tourism is aligned with CSR objectives in improving the level of the economy, community welfare and environmental sustainability (Teguh, et al). The aim of CSR is to create a harmonious relationship between the company, shareholders and the community as one of the stakeholders. The scope of the CSR implementation sector is: Education, Health, Environment, Community Empowerment, Public Facilities and Infrastructure & Natural and Religious Disasters.

According to previous research in Purwaningsih (2018), the development of tourist villages will not be realized without support from various parties. According to previous research in Purwaningsih (2018), there are many obstacles faced in developing tourist villages in Munggu village, one of which is funding to build supporting facilities and infrastructure such as public facilities for tourist comfort. If we look at funding in a village that is still inadequate, coordination and collaboration with other parties is necessary, one of which can be implemented by applying for assistance from the Corporate Social Responsibility program from BUMN.

From the explanation above, especially during the pandemic, Badung Regency really felt the impact in growing tourism, especially to increase the community's desire for entrepreneurship which can support the development of tourist villages in Badung Regency which really needs a helping hand from third parties other than the government, through the implementation of Corporate Social Responsibility (CSR). to minimize obstacles, especially in terms of management funding so that a sustainable tourism village can be achieved in Badung Regency, Bali.

## II. METHOD

This work was written using the method of a literature review. This article will illustrate the role of CSR to developing community base on tourism concept to sustainability using a systematic, explicit, and repeatable method for identifying, evaluating, and synthesizing research results and ideas that have been produced by researchers and practitioners in the form of explanations or

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discussions of theory of a finding or research topic. According to Okoli & Schabram (2010), a literature review is conducted to provide a theoretical framework for research that will be carried out in an effort to examine the depth or breadth of existing research on a topic to be studied. This approach also understands the outcomes of past study while responding to essential questions.

### III. RESULT AND DISCUSSION

#### A. Sustainability

Sustainable tourism is the development of a travel concept that can have a long-term impact on environmental, social, cultural and economic sustainability for the present and future for all local communities and visiting tourists.

Tourism has a positive impact from an economic perspective, but on the other hand it also has a negative impact as a result of tourism activities, especially during the growth and development of mass tourism in various tourist destinations in the world which are synonymous with poor, uncontrolled (sporadic) planning. who are impressed by only prioritizing economic growth or being materialistic.

According to Robert W. Kates (2005), sustainable development is development that emphasizes the values of national security and welfare of countries, regions and institutions from the existence of social capital from the community itself. In relation to the development of tourist villages, funding is the most important thing to make regional tourism goals a success. In the opinion of Ignas Kleden (2018), Sustainable development is development that aims to improve the standard of living which refers to the use of natural resources and human resources and remains obliged to maintain balance.

#### B. Components of Sustainability

John Elkington (1994) author of the "Triple Bottom Line" (People, Planet, Profit) concept with describe that sustainability is an effort to achieve a balance between economic growth, environmental protection and social welfare.

Sustainability is an important concept in various fields, including environmental, economic, social and cultural. The main components of sustainability include three main pillars, namely:

**Environmental Sustainability** which natural resource conservation in protecting natural resources, such as water, air, land, forests and biodiversity to prevent environmental damage and resource scarcity. Waste management like minimizing waste and pollution through wise management and use of environmentally friendly technology.

Utilization of renewable energy by replacing fossil energy sources with renewable energy sources, such as sun, wind and water, to reduce the impact of climate change.

**Economic Sustainability** is sustainable economic growth with encouraging economic growth that does not damage the environment and ensures an equitable distribution of economic benefits.

Sustainable innovation and technology by developing technology and business practices that are environmentally friendly and efficient in the use of resources.

Investment in local communities with encourage investment in local communities to improve their economic well-being.

**Social Sustainability** is equality and justice with ensure fair and equal access to economic and social resources, opportunities and benefits. Education and health by provide adequate access to education and health services for all members of society. Culture and identity is preserving the cultural heritage, language and traditions of the community, and ensuring respect for cultural diversity.

In addition to the three main pillars above, sustainability also involves cooperation between various stakeholders, including government, business, civil society and individuals. The concept of sustainability also considers the long-term impact of current actions and policies on future generations.

In practice, sustainability is often measured through performance indicators that reflect progress in these three main pillars. Sustainability is an important goal in various sectors, including the environment, economy, tourism, agriculture, and many more, as it is key to creating a better world and ensuring human survival on this planet.

#### C. Measurement of sustainability

Sustainability often involves setting specific targets and key performance indicators (KPIs) to track progress over time. Sustainability reporting and ongoing assessment are essential for organizations and communities to demonstrate their commitment to sustainable practices and make informed decisions to enhance sustainability.

Measuring sustainability involves a holistic assessment process to evaluate the environmental, social, and economic impacts and performance of an organization, project, or community in achieving sustainable goals. The following are some general steps in measuring sustainability.

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Determining Sustainability Goals while the first step is to determine the sustainability goals you want to achieve. These objectives should include environmental, social, and economic aspects relevant to the particular situation or organization. Identify performance Indicators by select performance indicators that will be used to measure progress towards sustainability goals. These indicators can differ depending on the context, but typically include environmental indicators such as carbon emissions, water consumption, and waste, as well as social indicators such as employee satisfaction, equality, and community participation. Collect data is begin collecting the data necessary to measure the performance indicators you have selected. This data may include financial information, environmental data, social data and relevant economic data. Data analysis is analyze data to measure current performance against predetermined indicators. This involves comparing the collected data with a previously established target or standard.

Impact Evaluation is an addition to measuring current performance, evaluate the long-term impact of current actions and policies on sustainability. This includes consideration of how current activities may affect the environment, society, and the economy in the future.

Make Improvements, after measuring performance and impact, identify areas that need improvement. Create an action plan to improve sustainability performance. Sustainability is monitoring and reporting by continue to monitor sustainability performance regularly and carry out continuous reporting. It allows organizations or communities to track progress, measure the impact of sustainability initiatives, and communicate transparently to stakeholders. Stakeholder Consultation by involving relevant stakeholders in the sustainability measurement process. Get their input and views on sustainability impacts and goals.

Use of Frameworks or Guidelines by use internationally recognized frameworks or guidelines, such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), or Sustainable Development Goals (SDGs) to help measure sustainability in a way that more structured and standardized and improve and Continue to Grow: Sustainability is an ongoing journey. Continuously improve sustainability initiatives based on measurement results and changes in the environment and society.

### **D. Sustainability concept Community Based Tourism with BUMN CSR role in Bali**

Murphy (1985), describe that Community base Tourism is a form of tourism development that involves local communities in tourism planning and management, and provides sustainable economic, social and environmental benefits for those communities. In essence, CBT prioritizes the participation of local communities in all aspects of tourism, from planning to marketing, with the aim of creating a positive impact on these communities while maintaining environmental and cultural sustainability. This approach recognizes the importance of strengthening the role of communities in tourism development and ensuring that the economic and social benefits of tourism are channeled back into local communities. Community based mostly tourism (CBT) is a community improvement tool that strengthens the ability of rural communities to manage tourism assets whereas ensuring the local community's participation. Community based tourism is socially sustainable tourism which is initiated and nearly all the time operated exclusively by local people.

Community-based tourism is defined by three key characteristics, Indigenous leadership, sustainability, and cultural immersion Community-based tourism puts emphasis on the active participation of the local community in tourism planning, management, and empowerment of local people in the tourism industry. Community-based tourism is one of the most significant parts of the tourism industry and key to destination sustainability.

The components of sustainable community-based tourism are (1) Indigenous leadership, Community-based tourism is managed by local Indigenous communities. This means the community assumes collective responsibility for all aspects of the tourists' stay, including accommodations, internal travel, food, and cultural activities. (2) Sustainability Community-based tourism takes environmental, social, and cultural sustainability into consideration. It's owned and managed by the neighborhood, for the neighborhood, with the aim of enabling visitors to extend their awareness and learn about the community and local ways of life. (3) Cultural immersion Community-based tourism involves unique experiences and culturally dense areas fed by local knowledge. It aims to provide opportunities for travelers to help locals. Tourists will know that their money is used for a good reason – the development of the destination. They will also leave knowin Bali is famous as an international tourist destination, especially in Badung district and to create a diversity of tourism on offer, since the enactment of Regent's Regulation No. 47 of 2010 concerning the designation of tourist village areas totally 11 tourist villages as tourist destinations, developing village tourism as a unique tourist destination, located in the North Badung area (Petang sub-district) and Badung Tengan (Mengwi and Abiansema sub-districts). Apart from creating community tourism, it is also believed to be a form of cultural communication from Balinese tourism based on cultural tourism.

The natural beauty combined with its cultural richness can certainly attract local and foreign tourists to spend their holidays on the Island of the Gods. To improve the standard of living of the community which refers to the welfare of the Badung

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Regency Government, the establishment of a tourist village is a strategy and smart step that underlies the Badung community to increase development based on the preservation of natural resources as a tourist destination based on culture and creating creations in the form of art to preserve the ancestral heritage. reflects the spirit of act locally and think globally while still prioritizing quality that will make visiting tourists feel safe, comfortable and at ease because they enjoy natural beauty as well as unique and cultural arts.

g they have left a positive footprint

According to Ernawan et.al (2016) Corporate Social Responsibility (CSR) is an effort so that companies not only operate for the interests of shareholders, but also for the welfare of stakeholders in business practices, namely workers, local communities, government, consumers and the environment.

According to Law Number 40 of 2007 concerning Limited Liability Companies ("UU PT"), which mentions Corporate Social Responsibility ("CSR") with Social and Environmental Responsibility ("TJSL"), it requires Limited Liability Companies to carry out their business in the field and/or related to natural resources. Must carry out social and environmental responsibilities and must be budgeted and calculated as company costs, the implementation of which is carried out by taking into account propriety and fairness. In relation to preserving nature and the environment as well as maintaining a harmonious relationship between the company and the community, this is also the basis for implementing CRS.

Sustainability issues that occur in communities that are not socially and economically empowered. To respond to this issue, the Company continuously and sustainably carries out social and environmental responsibility through corporate social responsibility programs so as to create a harmonious environment. The Company is the umbrella for the CSR implementation program in the Company which integrates the interests of improving the quality of life of the community in line with the company's business interests so that they synergize with each other, which aims to ensure that the company and the community both obtain long-term benefits from the program. The Company encourages every element within the company to behave well and maintain harmonious relationships with stakeholders and foster social sensitivity.

## IV. CONCLUSION

Corporate Social Responsibility carried out by BUMN in the development of sustainable community-based tourism, which is supported by government policies in monitoring, supervision and evaluation of tourism businesses as well as the active role of the community to increase the desire for entrepreneurship which greatly contributes to the development of tourist villages in realizing sustainable tourism in Badung Regency, Bali.

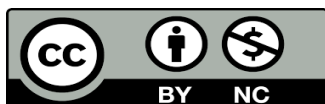
In this writing, it is hoped that management of the distribution of funds Corporate Social Responsible from government-owned enterprises (BUMN) and assistance from the government can be carried out to develop tourism villages based on culture to provide benefits that can be felt by the community in the development and sustainability of tourism with the CBT concept as well as government policies to increase the entrepreneurial intention of the community in sustainable tourism development with the aim of improving community welfare

## REFERENCES

- 1) Adewale, Aregbeshola dan Radebe Sarah. 2012. The Impact Of Corporate Social Responsibility On The Profitability Of Listed Retailers: Indication From The Johannesburg Security Exchange (JSE). African Journal of Business Management. 6(4). pp: 1694-1701.
- 2) Didik Rachbini, 2010, Kemiskinan dan Politik Ekonomi, dalam Media Indonesia, tanggal 12 Januari.
- 3) Justika S. Baharsyah, 1999. Menuju Masyarakat Berketahanan Sosial Pelajaran Dari Krisis. Jakarta: Departemen Sosial.
- 4) Mancur Olson. Jr, 1991. "Pertumbuhan Cepat Sebagai Kekuatan Destabilisasi", dalam Arus Pemikiran Ekonomi Politik, Amir Effendi Siregar, Ed, 1991. Yogyakarta: Tiara Wacana.
- 5) Saifur Rohman, 2011. Memaknai Ekonomi Tiwul, dalam Kompas, tanggal 8 Januari.
- 6) Ackerman, R.W. 1973. How Companies Respond to Social Demands. Harvard University Review 51(4), hal. 88-98.
- 7) Cassel, D. 2001. Human Rights Business Responsibilities in the Global Marketplace. Business Ethics Quarterly 11(2), hal. 261-274.
- 8) Donaldson, T. & Dunfee, T.W. 1994. Towards a Unified Conception of Business Ethics: Integrative Social Contracts Theory. Academy of Management Review 19, hal. 252-284.
- 9) Donaldson, T. & Preston, L.E. 1995. The Stakeholder theory of the Corporation: Concepts, Evidence and Implications. Academy of Management Review 20(1), hal. 65-91. Davis, K. 1960. Can Business Afford to Ignore Corporate Social Responsibilities? California Management Review 2, hal. 70-76.

## The Role of Corporate Social Responsibility in the Sustainability of Tourism Village

- 11) Friedman, M. 1970. The Social Responsibility of Business is to increase its profits. New York Times Magazine, September 13th, pp. 32-33, 122, 126.
- 12) Romi Marnelly1 CORPORATE SOCIAL RESPONSIBILITY (CSR): Tinjauan Teori dan Praktek di Indonesia
- 13) Towards New Tourism Policies: The Importance Of Environmental And Social Factors. Tourism Management. Vol. 3 No. 3 1982 Hal. 135-148.
- 14) Fauzia, M. 2020. Dampak Pandemi: Indonesia Resesi, Pengangguran Tembus 9,77 Juta. Kompas.Com. Accessed 9 Juni 2021.
- 15) Sumber: <https://mediaindonesia.com/humaniora/185778/sleman-terus-arahkan-konsep-pariwisata-berkelanjutan>



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## Postpartum Burnout Among Women of Childbearing Age: A Neglected Global Public Health Problem



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**ABSTRACT:** Euphoric moods characterize the postpartum period, but for many mothers, regardless of economic, social, ethnic, or cultural backgrounds, this period is overshadowed by the negative impact of physical and mental fatigue. This study conducted a comprehensive search across multiple databases, including PubMed, ScienceDirect, and Google Scholar, to gather articles reporting associations between various factors and postpartum fatigue. The findings revealed that cultural and social expectations of motherhood, sleep disturbance, partnering, socio-economic disadvantage, pre-existing mental illness, and labor experiences significantly contributed to postpartum fatigue. At the same time, routine exercise and social support systems served as protective factors. By addressing these factors promptly, healthcare providers can enhance the well-being and quality of life of postpartum women and their infants.

**KEYWORDS:** Pregnancy, postpartum, burnout, anxiety, depression

### INTRODUCTION

Fatigue, a subjective phenomenon unrelated to specific illnesses and relieved by adequate rest, encompasses biological, psychosocial, and behavioral components. Fatigue is characterized by decreased physical or mental ability to carry out daily activities and reduced quality of life [1]. The postpartum period presents unique challenges for mothers, placing them at risk for fatigue and feelings of decreased personal accomplishment. Common manifestations among postpartum women include persistent lack of energy, difficulty concentrating, sleep deprivation, attention deficits, and reduced mental and physical capacity for activity. Postpartum fatigue affects women of all ages, races, and sociocultural backgrounds. A study conducted in the United States of America that utilized questionnaires to assess fatigue found that 83% of women reported symptoms of fatigue at 4 to 6 weeks postpartum [2]. Various factors, such as sleep disturbances, cultural expectations, pre-existing mental illness, exercise availability, support networks, financial strain, and social status, have been found to influence the development of postpartum fatigue.

Postpartum fatigue often leads to psychopathological consequences. These adverse effects include an increased risk of postpartum depression, cognitive impairment, disrupted sleep patterns, breastfeeding difficulties, decreased productivity, and impaired infant development. Simultaneously, mothers may experience self-doubt, guilt, and depressed mood due to their perceived inability to provide optimal care for their infants. Despite its common occurrence, the reality of maternal fatigue is frequently dismissed as inconsequential, leaving the affected individual to suffer silently. The responsibilities of caring for a newborn, coupled with daily life activities, present significant adjustments, and unique challenges, particularly if the mom is expecting perfectionism in all domains. Therefore, it is crucial to establish additional support mechanisms to address the needs of this population. Further, more research should be conducted to identify preventive measures and develop targeted interventions to assist those most susceptible to postpartum fatigue.

### METHODS

Unsystematic searches were conducted to gather data for this study. PubMed, Google Scholar, and Science Direct databases were utilized to source the supporting articles. The search terms employed encompassed various aspects such as: (Postpartum fatigue) (Postpartum Burnout) (Sleep and postpartum fatigue) (Socio-economic factors and postpartum fatigue) (Social support and

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postpartum fatigue) (Labor experience and postpartum fatigue) (Exercise and postpartum fatigue) (Pre-existing mental illness and postpartum fatigue) (Cultural motherhood expectations and postpartum fatigue) (Societal expectations of motherhood and postpartum fatigue) ((Postpartum fatigue) AND (Influencing factors)) ((Postpartum fatigue) AND (Preventative factors)) ((Postpartum fatigue) AND (Influencing and preventative factors)).

The chosen articles underwent a thorough critical review process, considering factors like publication date and article type. Preference was given to cohort studies, meta-analyses, and systematic reviews. Selected articles primarily explored the associations between various protective factors and postpartum fatigue, as well as the influencing factors contributing to postpartum fatigue. To maintain relevancy, outdated, non-English articles discussing postpartum fatigue complications were excluded from the analysis.

### Influencing factors

#### 1. *Cultural and Societal Expectations of Motherhood*

The concept of a good mother varies across cultures and societies. Regardless of this variation, motherhood can often be associated with a negative self-image and intensive mothering. The expectations of mothers regarding their role in a child's development, the workplace, and the home contribute to stereotypes and create additional pressures, leading to burnout and increased stress [3]. These expectations reinforce persisting gender roles and often push women to strive for perfectionism, which can be detrimental to their own mental and physical health and that of their children [4]. As society evolves, it is crucial to have positive discussions about common misconceptions and unrealistic expectations of motherhood and its diverse range of experiences.

*Intensive mothering* is an ideology that expects mothers to prioritize children's needs above their own, regardless of personal circumstances [3-4]. This ideology perpetuates the notion that sacrifice is necessary to be considered a good mother. The effects of intensive mothering extend beyond its followers, as it indirectly pressures all mothers to strive for perfection. This ideology is deeply entrenched in movies, advertisements, and magazines, making it unavoidable [4]. While there has been progress in media representations of motherhood becoming more inclusive and diverse [5], discussions centered around the "right" way to raise children still impose strain on mothers, compelling them to conform to societal expectations.

The belief that motherhood is innate and natural leads to guilt and shame in women who experience unhappiness in their roles. When personal expectations do not align with societal expectations, this discrepancy contributes to feelings of depression [6]. Depression, in turn, contributes to postpartum burnout, characterized by a decreased interest in daily life and self-esteem. Mothers with low self-esteem are more susceptible to increased burnout as they tend to internalize criticism from others more intensely [7]. These mothers may already harbor doubts about their character and, consequently, their ability to fulfill their maternal role, ultimately leading to a negative self-image. A study among American mothers revealed that those with lower education levels experienced heightened anxiety and guilt in meeting societal [4].

Meeussen & Van Laar (2018) explored the connection between working mothers, their career aspirations, and burnout in a study focused on mothers in the United Kingdom and the United States. The research revealed that the impact of intensive mothering on career ambitions varied depending on the level of pressure experienced by the women involved [3]. The ideology of intensive mothering can motivate women to strive for their goals, driven by the desire to provide their children with the best opportunities available. However, the boundary between this pursuit and overexertion is delicate, as challenges in achieving a work-family balance can intensify burnout [3]. This study had several limitations, such as the specific geo-cultural contexts in which it was conducted and, therefore, its transferability to other settings. Further, it was conducted through online surveys, which may introduce biases due to participants' self-selection and limited internet access [8]. Therefore, the findings of this study cannot be applied to all working mothers; nevertheless, attempting to juggle work, relationships, and childcare simultaneously can contribute to burnout.

Mothers have consistently expressed how the repetitive nature of domestic tasks contributes to fatigue [9]. The perpetuation of traditional gender stereotypes regarding women's roles in the domestic sphere further compounds stress as mothers strive to balance personal relationships, work, childcare, and daily chores. In today's era dominated by social media, many users often present their lives as mothers with a seemingly perfect balance, leading to unfavorable comparisons among mothers engaging with content. Coyne et al. (2017, p. 7) state that "higher levels of social comparisons to other parents on SNS [social network services] were related to more role overload and lower levels of perceived parental competence." The portrayal of seamless experiences of motherhood by social media influencers and celebrities pressures mothers to conform to these unrealistic standards, consequently fostering feelings of inadequacy.

Experiences with postpartum burnout and the influence of societal expectations cannot be generalized across cultures and societies due to variations in family dynamics, postpartum care practices, and individual characteristics. Existing studies

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predominantly focus on Western Societies and participants who are primarily Caucasian, underscoring the need for more diverse samples to understand how societal expectations impact postpartum burnout among different ethnicities. For example, in Indian families, raising a child is seen as a collaborative effort involving multiple family members and friends [11]. Such a perspective differs significantly from Western norms, where mothers are expected to assume their child's primary caretaker and influencer role. In such contexts, burnout experiences related to societal factors may be more influenced by judgments from friends and family rather than the ideology of intensive mothering or negative self-image. Further research is needed to bridge the knowledge gap regarding the experiences of postpartum mothers from diverse cultural backgrounds and the correlation with societal expectations of burnout.

### **2. Sleep Disturbance**

Adequate sleep is crucial for postpartum women's physical and psychological well-being as they adapt to their new mothering roles. Sleep is vital in maintaining various physiological processes, immune health, executive brain function, and energy levels [12]. While certain aspects of postpartum mothers' sleep may gradually improve, their ability to obtain refreshing and sufficient sleep is often compromised. Sleep deprivation and subsequent fatigue are postpartum women's most reported challenges [13]. Sleep disturbance becomes more prevalent as the pregnancy progresses; approximately 87% of postpartum mothers experience fatigue due to sleep deprivation [14].

Several hypotheses have been proposed to explain the sleep dysregulation experienced by postpartum mothers. One theory suggests that sleep challenges and poor sleep hygiene cultivated during early pregnancy may contribute to sleep difficulties in the postpartum period [15]. Intrusive thoughts and worries about sleep disturbance and loss also played a role. Additionally, physiological changes in circadian rhythm disrupt the sleep-wake cycle of postpartum mothers [16]. These alterations have been identified as contributors to the disrupted sleep experienced by most women during the postpartum period. Finally, irregular sleep patterns and increased fatigue are consequences of the demands of caring for a newborn, including feeding patterns and hormonal changes. In some cases, the sleep disturbance reported by postpartum mothers has been compared to that of a nighttime shift worker [16]. While the challenges with sleep during late pregnancy are well-known, they are further amplified after childbirth and continue throughout the early stages of motherhood [16].

A study assessing sleep quality using the Pittsburgh Sleep Quality Index (PSQI) found that 87.5% of postpartum women experience poor sleep quality owing to factors such as infant disturbance, perceived stress, the sleep status of their babies, and physical postpartum symptoms. Furthermore, the study revealed that postpartum women are more likely to experience chronic sleep disruption and depression than women of the same age who have not given birth [17]. Decreased sleep duration, increased sleep deficiencies, and a sense of time loss were among the associated symptoms reported by postpartum women.

The circumstances outlined above prevent postpartum women from achieving adequate rest, which is crucial for rejuvenation. Consequently, they face a significant risk of fatigue and its subsequent effects. Sleep disturbances during the postpartum period contribute to increased fatigue and have detrimental physical and mental implications for the mother and the baby. Regular postnatal physician visits should include assessments of sleep quality to mitigate the adverse outcomes associated with poor sleep in this vulnerable population. While studies on sleep deprivation are common in other vulnerable groups, there is a lack of specific data about postpartum mothers.

### **3. Socio-economic Status**

Limited research has explored the link between socio-economic status and postpartum fatigue/burnout. One study conducted among Australian women found a slight correlation between education level and fatigue [18]. However, it is essential to note that the weak correlation observed in this study can be attributed to the fact that the participants had a significantly higher percentage of tertiary education than the general population. This imbalance may have introduced bias into the results, as higher education levels have been associated with lower overall stress levels [19].

Conversely, a small qualitative study conducted among low-income mothers specifically focusing on stressors during their pregnancy revealed three main stressors identified by participants: financial stress, violence, and isolation/loneliness. The mothers expressed additional financial stress, driven by a strong desire to provide their children with a life better than their own and experiences of intimate partner violence [20]. While this study specifically examined feelings during pregnancy, the vulnerability to adverse outcomes associated with low socio-economic status and the type of stressors reported are likely to persist during the postpartum period, potentially influencing the experience of fatigue. However, it is vital to acknowledge the limitations of this study, such as its predominantly Caucasian participant sample and reliance on participants' recall of feelings during their pregnancies, which could be subject to recall bias given the time lapse of up to three years prior to the study.

The stressors associated with low socio-economic status, whether during the prepartum, pregnancy, or postpartum periods, can amplify the impact of significant predictors of postpartum health. Numerous studies have demonstrated that a sense



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of mastery, infant temperament, and received social support are essential predictors of postpartum health [21]. A sense of mastery allows new mothers to navigate the transition into parenthood with confidence and control [21]. Infant temperament can either boost a mother's confidence or require her to exert more energy to interact with the baby, depending on the infant's behavior [21]. Social support is crucial to mothers' self-rated health outcomes. However, it is essential to recognize that a mother's socio-economic status can influence all these predictors. For a mother with a low socio-economic status, achieving mastery may be challenging due to limited self-care resources and options to alleviate fatigue [22]. A mother may be compelled to return to work immediately after postpartum or risk a significant reduction in household income. Both situations can result in increased mental and physical stress, strained family relationships, and an eroded sense of mastery [22].

The cumulative effects of these psychosocial risk factors can predispose mothers to fatigue [22]. Difficult infant temperament is closely associated with sleep deprivation in new mothers, and sleep deprivation is a strong predictor of postpartum fatigue in many studies [23]. With limited financial support, mothers are compelled to allocate time to work and household chores, further contributing to sleep deprivation and hindering mothers' opportunities for child-rearing, education, and managing their children's temperament [22]. Access to social support largely depends on a country's maternity policies and an individual's socio-economic status [24]. The more social support mothers receive, allowing for more rest, energy, and focused attention on their newborns [21]. In addition to the influence of socio-economic status and the strong predictors of postpartum health, a mother's socio-economic status determines the amount of time she can dedicate to relaxation, maintaining a healthy diet, and recovering from the postpartum state [23]. Due to the consistent association between low socio-economic status and adverse health outcomes, further representative studies are necessary to explore the connection between socio-economic status and postpartum burnout.

### **4. Previous Mental Illnesses such as Anxiety and Depression**

The term "burnout" originated in the professional domain during the 1980s, and it was initially defined as an emotionally drained state resulting from chronic stress. This state is characterized by negative feelings and attitudes, leading to suspicious and scornful behaviors toward their clients and a sense of dissatisfaction and sadness regarding personal achievements [25]. Burnout encompasses three dimensions: extreme exhaustion, depersonalization, and a sense of ineffectiveness and lack of personal accomplishment, collectively known as the burnout syndrome [25-26].

Parental burnout refers to a persistent state of emotional, mental, and physical exhaustion experienced by caregivers, which negatively impacts their overall psychosocial well-being, detachment from their children, and doubts about their ability to fulfill the role of the ideal parent [26- 28]. Postpartum burnout is a specific subset of parental burnout, characterized by extreme fatigue symptoms occurring in mothers immediately after childbirth and persisting for six weeks or more. The relationship between burnout and depression has been frequently debated in literature. Some argue that burnout leads to anxiety and depression, while others propose reverse causality, and there are also perspectives suggesting an overlap between burnout, depression, and anxiety [29-30]. These contradictions may be linked to different subgroups of burnout symptoms, ranging from mild to severe on a severity scale, with clinical symptoms being the most severe and requiring medications [9].

Maternal exhaustion may be a result of a variety of factors, including self-awareness and preparedness for the maternal role, expectations from family and societal norms, the presence and supportiveness of a co-parent, previous mental health issues, satisfaction with the partner relationship, and having children with special needs [9, 27]. Some argue that the development of burnout symptoms in parents results from a cumulative effect of multiple risk factors.

The presence of previous psychological challenges such as anxiety, depression, increased stress levels, and guilt symptoms during the antenatal and perinatal periods have been linked to the development of burnout and depressive symptoms in the postpartum and postnatal periods (during the child's first year) [26-27, 31-32]. Anxiety, characterized by persistent worry and fear, can manifest as physical symptoms such as increased heart rate, palpitations, chest pains, rapid breathing, sweating, and exhaustion. Prolonged anxiety can contribute to stress accumulation, emotional fatigue, and decreased effectiveness in achieving goals, ultimately leading to burnout [33]. Similarly, depressive symptoms such as lack of interest, loss of energy, low mood, sleep disturbances, appetite changes, and difficulty concentrating can also contribute to burnout. There is an interplay between anxiety, depression, and burnout; it is critical, therefore, to provide appropriate follow-up and treatment for mothers experiencing anxiety or depression during the perinatal period to prevent the prevalence of burnout and disease in the postnatal period.

Certain personality traits have been identified as additional risk factors for parental burnout. A study examining the five major personality traits - neuroticism, conscientiousness, openness, extraversion, and agreeableness - found that three were associated with increased symptoms of parental burnout [34]. Neuroticism, characterized by excessive worry and emotional instability, was linked to irritability, anxiety, anger, and depression, leading to negative interactions, lower tolerance, and negative affect toward their children. On the other hand, low levels of conscientiousness were associated with a lack of self-discipline,

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disorganization, carefree behavior, and inattentiveness to details. This trait made it challenging for parents to adhere to child-rearing norms, plan, and effectively manage their child's behavior, resulting in increased stress and eventual burnout symptoms. Agreeableness was also identified as a trait that influences the occurrence of parental burnout. Parents with low empathy, helpfulness, love, and altruism were found to be less considerate and tolerant of their child's needs, increasing their stress levels and exhaustion, ultimately leading to parental burnout.

While limited research explicitly addresses postpartum burnout, the existing studies highlight the impact of psychological, mental, and emotional disorders on the overall development of parental burnout from childbirth to pre- and teenage years. It is crucial to conduct more studies focusing on the perinatal period to facilitate early identification of these conditions, enabling the implementation of interventions and changes to prevent postpartum and parental burnout.

### 5. Childbirth Experience

Postpartum depression (PPD) is a common and multifaceted phenomenon that can harm children, women, and families [35]. The research by Smorti et al. (2019) suggests that complicated labor and birth, characterized by prolonged duration, increased pain, or medical interventions, can contribute to adverse outcomes ranging from maternal distress to PPD. Acknowledging that other significant events during childbirth can also be associated with PPD is essential. Therefore, numerous milestones may be encountered throughout the birthing experience, which can vary among mothers.

Various risk factors for PPD include a history of psychopathology before and during pregnancy, maternal neuroticism, difficult child temperament, lack of social support, and obstetric difficulties [36]. It is crucial to thoroughly analyze each of these risk factors, considering their unique manifestations depending on the individual circumstances of the patient. While it is understood that obstetric factors, such as the childbirth experience, can contribute to PPD, it is essential to note that research in this area remains limited.

New evidence indicates that the development of PPD is strongly influenced by a traumatic childbirth experience [37-38]. A study conducted by Bay & Sayiner (2021) found that women who perceived their birth experience as highly or very highly traumatic had a four to five times higher risk of developing PPD. While childbirth is an eagerly anticipated event for expectant mothers, it can sometimes leave lasting emotional scars and harm their well-being and relationship with their newborn. Rosseland et al. (2020) also found that a more negative birth experience was significantly associated with PPD, although not persistent pain eight weeks after delivery. As mentioned, the birth experience encompasses various elements, including labor pain.

Emerging research has shed light on the prevalence of PPD among women who gave birth during the COVID-19 pandemic. A study by Mariño-Narvaez et al. (2021) found that 40% of women who gave birth during this period experienced a higher incidence of PPD. The higher incidence of PPD can be ascribed to various factors, primarily the significant stress associated with the global pandemic. The healthcare systems were overwhelmed, increasing the burden and limiting visitation for those seeking treatment, primarily to protect immunocompromised individuals from the virus. At the time, the impact of the coronavirus on pregnant mothers and their unborn children was uncertain, adding to the overall anxiety and uncertainty surrounding the situation. These factors created a highly stressful and potentially dangerous environment for expectant mothers, which could have contributed to adverse long-term health outcomes.

Promoting adequate healthcare and specialized care and implementing screening tests to detect PPD are among the clinical guidelines recommended for reducing its prevalence [41]. Multiple factors contribute to the development of PPD, including socio-economic factors, environment, pre-existing mental conditions, and multiple pregnancies, making it challenging to pinpoint specific aspects of delivery or birthing experiences that directly correlate with its onset. However, integrating primary care with mental health services has enhanced overall medical care and decreased costs [42]. Ensuring comprehensive care for both the mother and child before and after birth is crucial for establishing an appropriate continuum of care.

## PREVENTATIVE FACTORS

### 1. Exercise

Regular and moderate-intensity exercise is known to enhance feelings of energy and decrease fatigue [43]. Not only limited to healthy individuals, symptoms of fatigue in patients with medical conditions including systemic lupus erythematosus, rheumatoid arthritis, multiple sclerosis, and cancer are also known to improve significantly with exercises [44-47]. If exercise interventions can relieve fatigue symptoms in these medical conditions, there is a possibility that the same can take place with mothers experiencing postpartum fatigue. However, postpartum fatigue is not considered a medical condition. Postpartum fatigue is yet to be adequately studied as it is still perceived as an unavoidable, temporary, and relatively minor symptom associated with new mothers [48]. Fortunately, although not many, several studies have been done to investigate the effect of scheduled exercise on

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postpartum fatigue in mothers, and results show that there is a clinically and statistically significant improvement in fatigue levels in women who have undergone varying exercise programs.

In one of the first randomized control trials exploring the impact of home-based exercise on postpartum fatigue, Dritsa et al. (2008) conducted a study focusing on fatigue symptoms in PPD patients. Participants were selected based on their depression scores using the Edinburgh Postnatal Depression Scale (EPDS), and fatigue levels were measured using the Multidimensional Fatigue Inventory (MFI). The intervention group was free to choose any form of exercise for an intervention for 12 weeks, mainly walking and jogging, if it was an aerobic exercise with 60-85% of the max heart rate target [49]. The study's results indicated improvements in physical fatigue among the intervention group. However, the limitations of this study also must be addressed. Generalizability is a concern as the sample specifically focused on patients diagnosed with PPD, participants who were highly educated. Although there were improvements in fatigue, the results were not statistically significant. Additionally, although follow-up was made in weeks 1, 3, and 9, the intervention was a home-based exercise program, where investigators could only rely on the participants for the authenticity of the intervention.

In a study by Ko et al. (2008), the researchers had a higher control over their participants and intervention. Participants were randomly selected in a Maternity Center where new mothers would stay for a month to recover from giving birth. Participants were given Fatigue Symptom Checklist before and after the exercise program [50]. The program consisted of 1-hour light-intensity workouts three times a week, focusing on achieving 50-60% of maximum heart rate through Pilates and Yoga exercises instructed and performed within the Maternity center [50]. The results indicated a statistically significant difference between the intervention and control groups. However, the study had limitations, including a lack of follow-up after the intervention, a small sample size, and the challenges of maintaining a strictly randomized control trial in a practical setting.

Ashrafinia et al. (2015) found significant differences in general fatigue, physical fatigue, reduced activity, reduced motivation, and mental fatigue at weeks 4 and 8 for participants who engaged in Pilates exercises. This study had similarities with the studies by Dritsa et al. (2008) and Ko et al. (2008) regarding using home-based workouts and providing instruction to the intervention group before delivery. However, the Ashrafinia et al. (2015) study differed in that the intervention consisted of exercises that gradually increased in difficulty rather than targeting a specific heart rate. One limitation of this study was the potential for recall bias, as data were collected through participant interviews.

In the last three studies, the intervention started less than a week after delivery, but Yang et al. (2018) initiated the intervention six weeks postpartum. The intervention involved aerobic gymnastic exercises conducted three times a week for three months. The study provided the participants with DVDs to perform the exercises at home to ensure equal intervention for all participants in the group. However, this study has limitations due to its reliance on self-reported questionnaires for data collection and its small sample size.

Several studies have explored the impact of exercise on improving sleep quality in new mothers, as sleep quality in early parenthood is a significant predictor of postpartum fatigue [48]. Ashrafinia et al. (2014) and Liu et al. (2021) conducted studies explicitly focusing on sleep quality in new mothers. Ashrafinia et al. (2014) examined the effects of Pilates on subjective sleep quality, sleep latency, and daytime dysfunction. At the same time, Liu et al. (2021) investigated the effects of walking exercise on sleep inefficiency, fatigue, and depression. The results indicated that both Pilates and walking exercises significantly improved sleep quality, as reported in the respective studies. However, only Pilates exercise improved fatigue and depression, suggesting that walking alone may not alleviate fatigue symptoms. As such, it may be necessary to incorporate more intense forms of exercise to achieve better outcomes regarding fatigue reduction.

Further research is needed to establish a conclusive link between exercise and its effectiveness in alleviating postpartum fatigue. Numerous studies examining exercise programs and postpartum fatigue encounter similar limitations, such as varying intervention durations and types, small sample sizes, lack of follow-ups, recall bias, and challenges in blinding the interventions. Despite these limitations, the results of these studies demonstrate promising outcomes for women experiencing postpartum fatigue daily. By conducting additional studies that address and overcome these limitations individually, exercise programs can be tailored specifically for postpartum women.

### 2. Social Support

Social support is a fundamental aspect of human adaptation to their dynamic environment, playing a vital role in navigating life's transition phases. Its significance varies across life cycle stages, with resources provided by family, friends, spouses, and children serving distinct purposes in childhood and adulthood. The presence or absence of social support has been identified as a significant factor influencing physical and psychological illnesses [55]. The same holds for women in the postpartum period as well.

Social support protects mothers from stress and promotes physical, emotional, and psychological well-being [56]. Research has demonstrated a positive correlation between the support mothers receive and their perceived efficacy in childcare,

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child bonding, and overall sense of security (Warren, 2005). Emotional, informational, psychological, and practical support are essential for postpartum mothers to feel a sense of belonging and nurturance [56]. The primary providers of such support are typically other mothers, spouses, family members, and friends.

In a prospective cohort study conducted at six weeks postpartum, the Edinburgh Postnatal Depression Scale (EPDS), Maternity Social Support Scale, and WHO Quality of Life assessment questionnaire were utilized to gather data [57]. The findings revealed that women who received higher levels of social support scored lower on the depression scale and higher on quality-of-life assessment scales. This study highlights the significance of having supportive individuals who can assist with the social aspects of motherhood, enabling mothers to rest and focus on mastering the new maternal responsibilities. Ultimately, this support can have positive implications for the physical and mental well-being of both the mother and the baby.

On the other hand, lacking social support can leave a mother vulnerable to feelings of inadequacy, frustration, anxiety, depression, and fatigue. The postpartum period introduces unique challenges as mothers navigate childcare, household responsibilities, and self-care. Without sufficient support, it is easy to become overwhelmed, resort to ineffective coping mechanisms, and become trapped in a cycle of postpartum fatigue. These circumstances can harm both the mother and baby's health. Extensive research has demonstrated that women with lower levels of social support are at a greater risk of developing postpartum fatigue, including PPD [58].

Adequate social support plays a vital role in the well-being of mothers and babies during the postpartum period. However, the full extent of the impact of inadequate social support on maternal fatigue remains unclear. Studies are needed to address the knowledge gap by further exploring the effects. These studies would help inform the development of structured interventions to optimize social support for this vulnerable population as they navigate the challenges of the postpartum experience.

### CONCLUSION

Various factors influence postpartum fatigue, including cultural and societal expectations of motherhood, sleep disturbances, socio-economic disadvantage, pre-existing mental illnesses, and labor experiences. Conversely, exercise and social support are protective factors against postpartum fatigue. Given its prevalence and detrimental effects on psychological and physical well-being, further research is crucial to develop personalized and more holistic intervention protocols for fatigued women postpartum, which are based on multiple factors: age, health status, educational levels, socio-economic status, marital status, geographic location, and access to social support and healthcare. Additionally, women at higher risk of experiencing postpartum fatigue should receive education, close monitoring, and appropriate interventions to prevent adverse outcomes.

### REFERENCES

- 1) Aaronson LS, Teel CS, Cassmeyer V, et al. Defining and measuring fatigue. *Image J Nurs Sch*. 1999;31(1):45-50. doi:10.1111/j.1547-5069.1999.tb00420.x
- 2) Cheng CY, Pickler RH. Perinatal stress, fatigue, depressive symptoms, and immune modulation in late pregnancy and one month postpartum. *ScientificWorldJournal*. 2014;2014:652630. Published 2014 Jan 22. doi:10.1155/2014/652630
- 3) Meeussen L, Van Laar C. Feeling Pressure to Be a Perfect Mother Relates to Parental Burnout and Career Ambitions. *Front Psychol*. 2018;9:2113. Published 2018 Nov 5. doi:10.3389/fpsyg.2018.02113
- 4) Henderson A, Harmon S, Newman H. The Price Mothers Pay, Even When They Are Not Buying It: Mental Health Consequences of Idealized Motherhood. *Sex Roles*. 2015 Sep 2;74(11-12):512–26.
- 5) Heffernan V, Wilgus G. Introduction: Imagining motherhood in the Twenty-First Century—Images, Representations, Constructions. *Women: A Cultural Review*. 2018 Jan 2;29(1):1–18.
- 6) Law NK, Hall PL, Cheshire A. Common Negative Thoughts in Early Motherhood and Their Relationship to Guilt, Shame and Depression. *Journal of Child and Family Studies*. 2021 Jun 7;
- 7) Raudasoja M, Sorkkila M, Aunola K. Self-Esteem, Socially Prescribed Perfectionism, and Parental Burnout. *Journal of Child and Family Studies*. 2022 May 5;
- 8) Bethlehem J. Selection Bias in Web Surveys. *International Statistical Review*. 2010 Jun 18;78(2):161–88.
- 9) Sanchez Rodriguez R, Laflaquière E, Orsini E, Pierce T, Callahan S, Séjourné N. Maternal fatigue and burnout: From self-forgetfulness to environmental expectations. *European Review of Applied Psychology*. 2020 Dec;70(6):100601.
- 10) Coyne SM, McDaniel BT, Stockdale LA. "Do you dare to compare?" Associations between maternal social comparisons on social networking sites and parenting, mental health, and romantic relationship outcomes. *Computers in Human Behavior*. 2017 May;70:335–40.
- 11) Tuli M. Beliefs on Parenting and Childhood in India. *Journal of Comparative Family Studies*. 2012 Jan;43(1):81–91.

## Postpartum Burnout Among Women of Childbearing Age: A Neglected Global Public Health Problem

- 12) Song C, Tagliazucchi E. Linking the nature and functions of sleep: insights from multimodal imaging of the sleeping brain. *Current Opinion in Physiology* [Internet]. 2020 Jun;15:29–36. Available from: <https://doi.org/10.1016/j.cophys.2019.11.012>
- 13) Yang Y, Li W, Ma TJ, Zhang L, Hall BJ, Ungvari GS, et al. Prevalence of Poor Sleep Quality in Perinatal and Postnatal Women: A Comprehensive Meta-Analysis of Observational Studies. *Frontiers in Psychiatry* [Internet]. 2020 Mar 13;11. Available from: <https://doi.org/10.3389/fpsy.2020.00161>
- 14) Ko SH, Chen CH, Wang HH, Su Y. Postpartum Women's Sleep Quality and Its Predictors in Taiwan. *Journal of Nursing Scholarship*. 2013 Oct 11;46(2):74–81.
- 15) Swanson LM, Kalmbach DA, Raglan GB, O'Brien LM. Perinatal Insomnia and Mental Health: A Review of Recent Literature. *Current Psychiatry Reports*. 2020 Oct 26;22(12).
- 16) Belete H, Misgan E. Determinants of Insomnia among Mothers during Postpartum Period in Northwest Ethiopia. *Sleep Disorders*. 2019 Apr 1;2019:1–7.
- 17) Sharkey KM, Iko IN, Machan JT, Thompson-Westra J, Pearlstein TB. Infant sleep and feeding patterns are associated with maternal sleep, stress, and depressed mood in women with a history of major depressive disorder (MDD). *Archives of Women's Mental Health* [Internet]. 2016 Apr 1;19(2):209–18. Available from: <https://doi.org/10.1007/s00737-015-0557-5>
- 18) Taylor J, Johnson M. The role of anxiety and other factors in predicting postnatal fatigue: From birth to 6 months. *Midwifery*. 2013 May;29(5):526–34.
- 19) Cohen S, Janicki-Deverts D. Who's Stressed? Distributions of Psychological Stress in the United States in Probability Samples from 1983, 2006, and 2009. *Journal of Applied Social Psychology*. 2012 Apr 16;42(6):1320–34.
- 20) Bloom T, Glass N, Curry MA, Hernandez R, Houck G. Maternal Stress Exposures, Reactions, and Priorities for Stress Reduction among Low-income, Urban Women. *Journal of Midwifery & Women's Health*. 2012 Dec 27;58(2):167–74.
- 21) Ahn S, Youngblut JM. Predictors of Women's Postpartum Health Status in the First 3 Months After Childbirth. *Asian Nursing Research*. 2007 Sep;1(2):136–46
- 22) Giallo R, Seymour M, Dunning M, Cooklin A, Loutzenhiser L, McAuslan P. Factors associated with the course of maternal fatigue across the early postpartum period. *Journal of Reproductive and Infant Psychology*. 2015 Apr 10;33(5):528–44.
- 23) Park J, Park CG, Lee K. A Quantile Regression Analysis of Factors Associated with First-Time Maternal Fatigue in Korea. *International Journal of Environmental Research and Public Health*. 2021 Dec 25;19(1):215.
- 24) Iwata H, Mori E, Sakajo A, Aoki K, Maehara K, Tamakoshi K. Course of maternal fatigue and its associated factors during the first 6 months postpartum: a prospective cohort study. *Nursing Open*. 2018 Feb 21;5(2):186–96.
- 25) Maslach C, Jackson SE. The measurement of experienced burnout. *Journal of Organizational Behavior* [Internet]. 1981 Apr;2(2):99–113. Available from: <https://doi.org/10.1002/job.4030020205>
- 26) Roskam I, Raes ME, Mikolajczak M. Exhausted Parents: Development and Preliminary Validation of the Parental Burnout Inventory. *Frontiers in Psychology*. 2017 Feb 9;8.
- 27) Lebert-Charron A, Dorard G, Wendland J, Boujut E. Who are and are not the burnout moms? A cluster analysis study of French-speaking mothers. *Journal of Affective Disorders Reports*. 2021 Apr;4:100091.
- 28) Kawamoto T, Furutani K, Alimardani M. Preliminary Validation of Japanese Version of the Parental Burnout Inventory and Its Relationship With Perfectionism. *Frontiers in Psychology*. 2018 Jun 20;9.
- 29) Creedy DK, Sidebotham M, Gamble J, Pallant J, Fenwick J. Prevalence of burnout, depression, anxiety and stress in Australian midwives: a cross-sectional survey. *BMC Pregnancy and Childbirth*. 2017 Jan 9;17(1)
- 30) Bianchi R, Schonfeld IS, Laurent E. Burnout–depression overlap: A review. *Clinical Psychology Review* [Internet]. 2015 Mar;36(36):28–41. Available from: <https://doi.org/10.1016/j.cpr.2015.01.004>
- 31) O'Hara MW, Wisner KL. Perinatal mental illness: Definition, description and aetiology. *Best Practice & Research Clinical Obstetrics & Gynaecology* [Internet]. 2014 Jan;28(1):3–12. Available from: <https://doi.org/10.1016/j.bpobgyn.2013.09.002>
- 32) Farr SL, Dietz PM, O'Hara MW, Burley K, Ko JY. Postpartum Anxiety and Comorbid Depression in a Population-Based Sample of Women. *Journal of Women's Health* [Internet]. 2014 Feb;23(2):120–8. Available from: <https://doi.org/10.1089/jwh.2013.4438>
- 33) Koutsimani P, Montgomery A, Georganta K. The Relationship Between Burnout, Depression, and Anxiety: A Systematic Review and Meta-Analysis. *Frontiers in Psychology* [Internet]. 2019 Mar 13;10(284). Available from: <https://doi.org/10.3389/fpsyg.2019.00284>
- 34) Le Vigouroux S, Scola C, Raes ME, Mikolajczak M, Roskam I. The big five personality traits and parental burnout: Protective and risk factors. *Personality and Individual Differences*. 2017 Dec;119:216–9.

## Postpartum Burnout Among Women of Childbearing Age: A Neglected Global Public Health Problem

- 35) Smorti M, Ponti L, Pancetti F. A Comprehensive Analysis of Postpartum Depression Risk Factors: The Role of Socio-Demographic, Individual, Relational, and Delivery Characteristics. *Frontiers in Public Health*. 2019 Oct 24;7.
- 36) Yakupova VA, Suarez A. Postpartum Depression and Birth Experience in Russia. *Psychology in Russia: State of the Art*. 2021;14(1):28–38. <https://doi.org/10.11621/pir.2021.0103>
- 37) Bell AF, Andersson E. The birth experience and women’s postnatal depression: A systematic review. *Midwifery* [Internet]. 2016 Aug;39:112–23. Available from: <https://doi.org/10.1016/j.midw.2016.04.014>
- 38) Gosselin P, Chabot K, Béland M, Goulet-Gervais L, Morin AJS. Fear of childbirth among nulliparous women: Relations with pain during delivery, post-traumatic stress symptoms, and postpartum depressive symptoms. *L’Encéphale* [Internet]. 2016 Apr 1;42(2):191–6. Available from: <https://doi.org/10.1016/j.encep.2016.01.007>
- 39) Bay F, Sayiner FD. Perception of traumatic childbirth of women and its relationship with postpartum depression. *Women & Health*. 2021 May 12;61(5):479–89. <https://doi.org/10.1080/03630242.2021.1927287>
- 40) Rosseland LA, Reme SE, Simonsen TB, Thoresen M, Nielsen CS, Gran ME. Are labor pain and birth experience associated with persistent pain and postpartum depression? A prospective cohort study. *Scandinavian Journal of Pain*. 2020 Jul 28;20(3):591–602.
- 41) Mariño-Narvaez C, Puertas-Gonzalez JA, Romero-Gonzalez B, Peralta-Ramirez MI. Giving birth during the COVID-19 pandemic: The impact on birth satisfaction and postpartum depression. *International Journal of Gynecology & Obstetrics*. 2020 Dec 23;
- 42) Lim G, LaSorda KR, Farrell LM, McCarthy AM, Facco F, Wasan AD. Obstetric pain correlates with postpartum depression symptoms: a pilot prospective observational study. *BMC Pregnancy and Childbirth* [Internet]. 2020 Apr 22;20. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7178606/>
- 43) Loy BD, O’Connor PJ, Dishman RK. The effect of a single bout of exercise on energy and fatigue states: a systematic review and meta-analysis. *Fatigue: Biomedicine, Health & Behavior*. 2013 Oct;1(4):223–42.
- 44) Heine M, van de Port I, Rietberg MB, van Wegen EE, Kwakkel G. Exercise therapy for fatigue in multiple sclerosis. *Cochrane Database of Systematic Reviews*. 2015 Sep 11;(9).
- 45) Monga U, Garber SL, Thornby J, Vallbona C, Kerrigan AJ, Monga TN, et al. Exercise Prevents Fatigue and Improves Quality of Life in Prostate Cancer Patients Undergoing Radiotherapy. *Archives of Physical Medicine and Rehabilitation*. 2007 Nov;88(11):1416–22.
- 46) Rongen-van Dartel SAA, Repping-Wuts H, Flendrie M, Bleijenberg G, Metsios GS, van den Hout WB, et al. Effect of Aerobic Exercise Training on Fatigue in Rheumatoid Arthritis: A Meta-Analysis. *Arthritis Care & Research*. 2015 Jul 26;67(8):1054–62.
- 47) Tench CM. Fatigue in systemic lupus erythematosus: a randomized controlled trial of exercise. *Rheumatology*. 2003 Mar 31;42(9):1050–4.
- 48) Henderson J, Alderdice F, Redshaw M. Factors associated with maternal postpartum fatigue: an observational study. *BMJ Open* [Internet]. 2019 Jul 27;9(7). Available from: <https://doi.org/10.1136/bmjopen-2018-025927>
- 49) Dritsa M, Da Costa D, Dupuis G, Lowensteyn I, Khalifé S. Effects of a Home-based Exercise Intervention on Fatigue in Postpartum Depressed Women: Results of a Randomized Controlled Trial. *Annals of Behavioral Medicine*. 2008 Mar 27;35(2):179–87.
- 50) Ko YL, Yang CL, Chiang LC. Effects of Postpartum Exercise Program on Fatigue and Depression During “Doing-the-Month” Period. *Journal of Nursing Research*. 2008 Sep;16(3):177–86.
- 51) Ashrafinia F, Mirmohammadali M, Rajabi H, Kazemnejad A, Haghighi KS, Amelvalizadeh M. Effect of Pilates exercises on postpartum maternal fatigue. *Singapore Medical Journal* [Internet]. 2015 Mar 1;56(3):169–73. Available from: <https://doi.org/10.11622/smedj.2015042>
- 52) Yang CL, Chen CH. Effectiveness of aerobic gymnastic exercise on stress, fatigue, and sleep quality during postpartum: A pilot randomized controlled trial. *International Journal of Nursing Studies*. 2018 Jan;77:1–7. Available from: <https://doi.org/10.1016/j.ijnurstu.2017.09.009>
- 53) Ashrafinia F, Mirmohammadali M, Rajabi H, Kazemnejad A, Sadeghniai Haghighi K, Amelvalizadeh M, et al. The effects of Pilates exercise on sleep quality in postpartum women. *Journal of Bodywork and Movement Therapies*. 2014 Apr;18(2):190–9. Available from: <https://doi.org/10.1016/j.jbmt.2013.09.007>
- 54) Liu Y, Chang C, Hung H, Chen C. Outcomes of a walking exercise intervention in postpartum women with disordered sleep. *Journal of Obstetrics and Gynaecology Research*. 2021 Jan 25;47(4):1380–7.
- 55) Hale CJ, Hannum JW, Espelage DL. Social Support and Physical Health: The Importance of Belonging. *Journal of American College Health*. 2005 May;53(6):276–84.

## Postpartum Burnout Among Women of Childbearing Age: A Neglected Global Public Health Problem

- 56) De Sousa Machado T, Chur-Hansen A, Due C. First-time mothers' perceptions of social support: Recommendations for best practice. *Health Psychology Open*. 2020 Jan;7(1):205510291989861.
- 57) Webster J, Nicholas C, Velacott C, Cridland N, Fawcett L. Quality of life and depression following childbirth: impact of social support. *Midwifery*. 2011 Oct;27(5):745–9.
- 58) Kim TH, Connolly JA, Tamim H. The effect of social support around pregnancy on postpartum depression among Canadian teen mothers and adult mothers in the maternity experiences survey. *BMC Pregnancy and Childbirth* [Internet]. 2014 May 7;14(1). Available from: <https://doi.org/10.1186/1471-2393-14-162>



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## The Relationship between Participant Self-Evaluation, Coach Competence, Participant Tasks Achievement and Participant Potential after Underwriting Boccia Training Program



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**ABSTRACT:** The purpose of this study was to determine the Relationship Between Participant Self-Evaluation, Coach Competence, Participant Tasks Achievement and Participant Potential After Underwriting Boccia Training Program. The type of research used in this research is quantitative descriptive research. The quantitative descriptive method is a quantitative research in which the form of description is numerical (statistical). This means that the research is related to the description with statistical numbers. This study used the SOAP-M model to analyze the evaluation of the Boccia training program. In the meta-analysis, researchers examined the relationship between self-evaluation, trainer competence, and achievement with the potential of participants after undergoing the Boccia training program. The results of the meta-analysis showed that self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) simultaneously affect the potential accuracy skills of throw boccia with a positive regression coefficient value. This means that self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) together have a positive impact on the potential of throw boccia accuracy skills in the boccia training program. This also shows that if self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) increase, then there is an increase in the potential of throw boccia accuracy skills and vice versa if it decreases then there is a decrease in the potential of throw boccia accuracy skills in the boccia training program. The results of the coefficient of determination test show that 93.5% of the potential of throw boccia accuracy skills can be explained by variations in self-evaluation, others (trainer competence), and achievement. The remaining 6.5% was explained by other causes outside the study variables. Of the 93.5%, 33.6% of the variation of potential participants is determined by self-evaluation, 32.0% of the variation of potential participants is determined by others (trainer competence), and 27.9% of potential participant variation is determined by achievement. Thus, self-evaluation has a more dominant influence on potential participants than other variables (trainer competence) and achievement.

**KEYWORDS:** Self-Evaluation, Coach Competence, Achievement, Potential, Boccia, Training Program

### INTRODUCTION

Boccia, first introduced in New York in 1984, is a Paralympic Sport regulated by BISFed is a strategy and precision game originally designed to be played by people with cerebral palpation (Ferreira et al., 2022). Boccia is a Paralympic sport played by athletes with severe neurological disorders that affect all four limbs. Impaired manual dexterity and impaired limbs can limit an individual's ability to perform certain activities such as grasping, letting go, or manipulating objects that are essential tasks for daily life or for participating in sports such as para boccia (Hidayatullah, 2020). Boccia is a Paralympic sport for athletes with cerebral palsy and certain other conditions, such as muscular dystrophy, which causes disorders similar to cerebral palsy (Nurdiantimala et al., 2021).

Boccia can be played individually, in pairs, or in teams with 3 members. In pairs or team matches, both male and female athletes can play together in the same team (Love et al., 2020). During the match, each athlete has 6 balls in one half. The match starts with the jack thrown first, then continues with the first 2 color balls played, namely 1 ball from the athlete who throws the jack and 1 ball from the opponent's side. Then, the color ball farthest from the jack will play first or throw the color ball back to get close to the jack. The thrown color ball continues up to 6 balls. After that, opposing athletes begin to throw their remaining color balls. When all athletes have thrown 6 color balls, the athlete will be awarded points based on the decision of the referee,



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who has identified the closest color ball rather than the color ball belonging to the opponent closest to the jack. The winner of the match is determined based on the highest number of points when the game has finished. If there are 2 teams with the same number of points, then there is 1 additional round to determine the winner (Haris et al., 2020).

The basic throwing techniques specific to Boccia are unique to each player due to their specific capacities and limitations. There are 3 basic techniques in throwing a boccia ball including throwing underhand, throwing overhand, and throwing using a ramp. In addition to the throwing techniques that every boccia athlete needs to master, there are also game strategies including blocking, defeating a block, and playing the circle (Haris, 2022).

Not long ago, Boccia athletes underwent a training program in the national training center organized by NPC Indonesia management. NPC itself is an institution responsible for gathering, coaching, training, and forming qualified disability-specific sports athletes and is responsible for coordinating every disability activity at the regional, national, and international levels (Rahmawati et al., 2020). NPC Indonesia is a sports achievement organization for people with disabilities which is the only forum for coaching and organizing sports for people with disabilities in Indonesia and is authorized to foster people with disabilities. NPC is expected to raise the achievements of boccia athletes to the world level (Łosień et al., 2018).

Training concentration is an organized period during which personnel or athletes participate in a rigorous and focused training schedule to learn or improve skills (Bakhtiar & Ballard, 2015). Athletes usually take advantage of training centers to prepare for upcoming events and in competitive sports, to focus on developing skills and strategies to defeat their opponents (Affiza, 2022). Training centers generally refer to training periods or further training or refreshment. This national training center is carried out in preparation for the 2023 ASEAN Paragames in Phnom Penh, Cambodia and the 2023 ASIAN Paragames in Hangzhou, China. Boccia training is the period before competition where an Indonesian National Paralympic Committee (NPC) boccia athlete trains specifically for an upcoming event (AM Love, 2022). Athletes will usually train in a special place boccia, where they have several other athletes and coaches who can help them in various forms of training including various throwing techniques to win the game. Boccia training can take place up to several months before the competition begins (Arimbi, Poppy Elisano Arfanda, 2022).

Training is The process to improve abilities or skills, the ability of skills trained ranging from technique, tactics, physical, and mental (Priyambodo, 2018). Exercise is a process of change for the better, the purpose of exercise is to improve the physical quality, functional ability of body equipment, and psychological quality of children training (Yunyun Yudianta, Herman subardjah, 2019). Training is a training process that is carried out systematically and repeatedly, the more days the training load increases, and is carried out over a long period of time so as to improve the ability and skills of athletes (Matjan, 2009).

When conducting training, it is important to evaluate the training to highlight that all athletes will have qualifications and experience after undergoing training (Rahman & Jakarta, 2022). Therefore, it is important for athletes to receive professional training and guidance to develop their skills and function effectively (Nugroho et al., 2020). As a result, national training centers organize training programs that help athletes to improve their skills effectively. The final stage of training is the evaluation of training, which plays an important role in measuring training results, but this aspect is generally overlooked (Lange & TH10, 2014).

The definition of training evaluation in various aspects of evaluation and what it measures. In terms of training program effectiveness, training evaluation is defined as "a process that can be used to determine the effectiveness and/or efficiency of instructional programs". In terms of its ability to provide feedback, evaluation is defined as "any attempt to obtain information (feedback) about the effect of the training program and to assess the value of the training based on that information" (Candrawati et al., 2018). In addition, training evaluation usually refers to the approach of conducting an evaluation and therefore defines it as a systematic procedure for collecting and analyzing information from the training process to determine the efficiency and effectiveness of training interventions. However, evaluation is used in different ways, with various implications; It occurs at various levels, for example in classrooms, programs, courses, general education and in institutions (Kanaslan & Iyem, 2016).

The first benefit of training evaluation is that evaluation is a form of quality control for training. Therefore, evaluation is considered an integral part of a continuous quality assurance cycle that includes the program philosophy (Ratna et al., 2018). Evaluation is used to verify the effectiveness of training and, as such, is considered the most appropriate method to achieve it (Purnomo et al., 2022). Effectiveness is defined as the achievement of a desired target. The second benefit of evaluation is in determining the achievement of organizational goals. Training program evaluation provides an overview of the program's ability to achieve its goals. The evaluation results help determine the results of training to ensure that there is an increase in performance (DR Saharullah, 2021).

The training program should be evaluated to determine whether it should continue or not. In addition, evaluation training is necessary for policymakers to be able to make informed decisions, such as stopping inefficient programs and expanding efficient programs. In addition, the evaluation identifies areas in the training that require further improvement and can provide insight into

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methods to improve the training program. Therefore, the training process should be evaluated to determine the effectiveness of the various components of the training and development program (ODE, 2022).

Although training evaluation plays an important role in measuring training outcomes, it is a source of frustration for agencies, which may struggle to understand the approach, the various requirements and evidence required to do so. Inadequate and implemented training Poorly can be a hindrance to training effectiveness (Widiyastuti & Purwana ES., 2015). Lack of awareness or access to methods and tools for the evaluation process is another possible reason for inadequate evaluation. However, the assessment process need not be too complicated (Rukmi et al., 2014).

This study proposes a systematic and practical approach to evaluate training, especially training programs, by adapting the SOAP-M training criteria model, The SOAP-M (Self, Other, Achievements, Potential, Meta-Analysis) model for training and coaching evaluation can be implemented in an organization by human resource managers and aims to fill the gaps of the model described earlier, as well as to integrate their strengths. The model aims to form a practical model, as well as to meet the needs of researchers and academics interested in meta-level assessments of various interventions or training designs. The model consists of five levels of analysis that can be used to HR (HR) interventions such as training or coaching. Which is a new comprehensive and practical evaluation framework and model as well as a more advanced evaluation method for researchers for higher level analysis. This study provides a theoretical basis for the proposed adaptation of the training evaluation model for Indonesian NPC administrators. In addition, presented a meta-analysis study on the success of the training program to evaluate the Boccia Pelatnas training program.

### **METHOD**

The place where this research was carried out was at the National Training Center Boccia NPC Indonesia. The study was conducted for 3 months. The type of research used in this study is quantitative descriptive research. Quantitative descriptive method is a quantitative research in the form of description with numbers or numerical (statistical). The point is that the research is related to the elaboration with statistical numbers.

The design of this study used a survey. Survey research design is a quantitative research procedure carried out to obtain a description of attitudes, behaviors, and characteristics of the population obtained through samples in the population (Creswell & Creswell, 2018). This study used the SOAP-M model to analyze the evaluation of the Boccia Pelatnas training program.

Meta-analysis referred to here is data analysis to reveal relationships that existed in the previous stage. In the meta-analysis, researchers examined the relationship between self-evaluation, trainer competence, and achievement with the potential of participants after undergoing the Boccia Pelatnas training program.

The following is an explanation of data analysis:

Multiple linear regression is used to assess meta-analysis relationship self-evaluation participants, and achievement participants with potential Participants. Before the data are tested in multiple linear regression analysis, the prerequisites for normal distribution, the linear relationship of each independent variable with the dependent variable, as well as the absence of multicollinearity (the absence of correlation between independent variables) in the data must be met.

In multiple linear regression there are several hypothetical analyses:

a. F test (simultaneous test)

Test F is used to determine the relationship between participant self-evaluation, others, and participant achievement simultaneously with potential participants

b. T test (partial test)

The t test is used to determine the relationship between participants' self-evaluation, others, and participants' achievement partially with potential participants.

c. Coefficient of determinant (R-Square)

The determinant coefficient is used to find out how much the contribution of self-evaluation participants, others, and achievement participants either simultaneously or partially against potential participants.

### **RESULTS AND DISCUSSION**

Description of data from the evaluation of the boccia training program using the SOAP-M model. This section presents the results of research and its interpretation. Meta-analysis data assesses the relationship between participant self-evaluation, others, and participant achievement with potential participants.

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## Data description

The data obtained from each meta-analysis variable is then grouped and analyzed with statistics, as shown in the appendix. The summary of the meta-analysis data description is presented as follows

**Table 1. Description of Data Meta-Analysis**

Variable	N	Mean	SD	Category
Self evaluation (X1)	11	4.00	1.90	Moderate
Others (X2)	11	28.09	5.68	Moderate
Achievement (X3)	11	8.00	4.12	Moderate
Potential (Y)	11	5.36	2.69	Moderate

Based on the table, from 11 samples of athletes Boccia who underwent Training Program Pelatnas shows that Self Evaluation (self-evaluation) of Training Pelatnas in category moderate with an average of 4.00 and a standard deviation of 1.90. Trainer competencies assessed by others (athlete Boccia) in the category moderate with an average of 28.09 and a standard deviation of 5.68. Achievement of participant tasks in Training (achievement) in category moderate with an average of 8.00 and a standard deviation of 4.12. The potential of technical skills possessed by participants after undergoing Training Pelatnas (potential) in the category moderate with an average of 5.36 and a standard deviation of 2.69. Value Intervals and Meta-Analysis Categories:

### 1. Self Evaluation

Data obtained from differences pre and Post Self Evaluation, displayed in the form of intervals of values and categories in the following table:

**Table 2. Value Interval and Self Evaluation Category**

Interval	Category	Frequency	Percentage
8 - 9	Very High	1	9 %
6 - 7	High	1	9 %
4 - 5	Moderate	4	36 %
2 - 3	Low	5	45 %
0 - 1	Very Low	0	0 %

Based on the table shows that 1 athlete Boccia have Very high self evaluation (9%), 1 athlete Boccia have Self Evaluation High (9%), 4 athletes Boccia have moderate self evaluation (36%), and 5 athletes Boccia have Self Evaluation Low (45%).

### 2. Others (trainer competence)

Data obtained from the assessment of athletes in assessing the competence of coaches, are displayed in the form of value intervals and categories in the following table:

**Table 3. Value Interval and Other Category**

Interval	Category	Frequency	Percentage
40 - 45	Very High	0	0%
34 - 39	High	3	27%
28 - 33	Moderate	1	9%
22 - 27	Low	7	64%
16 - 21	Very Low	0	0%

Based on the table shows that 3 athletes rated the coach's competence in the high category (27%), 1 athlete rated the coach's competence in the moderate category (9%), and 7 athletes rated the coach's competence in the low category (64%).

### 3. Achievement

Data obtained from the coach's assessment in assessing the achievement of athletes' tasks in the training program (achievement), are displayed in the form of value intervals and categories in the following table:

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**Table 4. Value Interval and Achievement Category**

Interval	Category	Frequency	Percentage
16 - 19	Very High	1	9%
12 - 15	High	0	0%
8 - 11	Moderate	4	36%
4 - 7	Low	6	55%
0 - 3	Very Low	0	0%

Based on the table shows that 1 athlete has very high task achievement (9%), 4 athletes have moderate task achievement (36%), and 6 athletes have low task achievement (55%).

### 4. Potential

The data obtained from the skill assessment of the boccia throw precision technique, are displayed in the form of value intervals and categories in the following table:

**Table 5. Value Interval and Potential Category**

Interval	Category	Frequency	Percentage
11 - 13	Very High	1	9%
8 - 10	High	2	18%
5 - 7	Moderate	3	27%
2 - 4	Low	5	45%
-1 - 1	Very Low	0	0%

Based on the table shows that 1 athlete has very high throw boccia accuracy technique skills (9%), 2 athletes have high boccia throw accuracy technique skills (18%), 3 athletes have moderate throw boccia accuracy technique skills (27%), and 5 athletes have low throw boccia accuracy technique skills (45%).

### Hypothesis Testing

#### (a) Multiple linear regression test

Multiple linear regression tests are used to relate self-evaluation, trainer competence (others), and achievement with potential participants after undergoing the boccia training program. The results of multiple regression linear analysis between self-evaluation (X1), others (X2), and achievement (X3) data with potential (Y) of this study are:

**Table 6. Multiple Linear Regression Test Results**

Type		standardized Coefficients		tandardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-5.164	1.368	
2	Self-evaluation	.678	.148	.478
3	Others (trainer competence)	.212	.052	.447
4	Achievement	.238	.077	.364

Based on the table of multiple linear regression test results, it can be determined that the multiple linear regression equation resulting from this study is as follows:

$$Y = -5.164 + 0.678 X1 + 0.212 X 2 + 0.238 X3$$

Information:

Y = Potential

X1 = Self evaluation

X2 = Others

X3 = Achievement

1. The constant value (a) of -5.164 means that if the self-evaluation, others (trainer competence), and achievement value are equal to zero (0), then the potential participant is -5.164.
2. B1 of 0.678 means that the value of the regression coefficient of the self evaluation variable is 0.678, meaning that if other independent variables have fixed values and self-evaluation increases by 1%, the potential participants will increase by 0.678.

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The positive value coefficient means that there is a positive relationship between self-evaluation and potential participants, the more self-evaluation, the more potential participants.

3. B2 of 0.212 means that the value of the regression coefficient of the others variable (trainer competence) is 0.212, meaning that if other independent variables have a fixed value and others (trainer competence) increases by 1%, the potential participants will increase by 0.212. A positive coefficient means that there is a positive relationship between others (trainer competence) and potential participants, the more others (trainer competence) increase, the more potential participants.
4. B3 of 0.238 means that the value of the regression coefficient of the achievement variable is 0.238, meaning that if other independent variables have a fixed value and achievement increases by 1%, the potential participants will increase by 0.238. A positive coefficient means that there is a positive relationship between achievement and potential participants, the higher the achievement, the more the potential participants increase

### (b) Fcalculate Test (Simultaneous Test)

The Fcalculate Test (simultaneous test) is used to determine the effect of independent variables together (simultaneously) affecting the dependent variable. The results of simultaneous test analysis can be seen in the following table:

**Table 7. Calculate Test Results (Simultaneous Test)**

Type	Sum	Df	Mean	F	Sig.
1 Regression	67.822	3	22.607	33.500	.000a
Residuals	4.724	7	.675		
Total	72.545	10			

a. Predictors: (Constant), achievement, self evaluation, others (Trainer competence)

b. Dependent Variable: potential participant

Based on the table of Fcalculate test results (simultaneous test) obtained a Fcalculate value of 33,500 greater than Ftable with df (n-k) = 4.35, and a significance value (sig) of 0.000 < 0.05, then H0 is rejected and H1 is accepted so that self-evaluation, others (trainer competence), and achievement simultaneously affect potential participants in the boccia training program.

### (c) Calculated test (Partial Test)

The tcount test is used to show how far the influence of the independent variable individually explains the variation of the dependent variable. The results of the partial test analysis can be seen in the following table:

**Table 8. Calculated Test Results (Partial Test)**

Type	t	Sig.
(Constant)	-3.774	.007
Self evaluation	4.572	.003
Others (trainer competence)	4.058	.005
Achievement	3.111	.017

Based on the table of tcalculate test results (partial test) obtained a calculated t value greater than ttable with df (n-k-1) = 2.97 and significance value (sig)

< 0.05, then H0 is rejected and H1 is accepted. So it can be concluded as follows:

- 1) Self-evaluation affects potential participants in the boccia training program (tcount (4,572), > ttable (2.97) and sig (0,000) < 0.05).
- 2) Others (trainer competence) affects the potential of participants in the Boccia training program (tcount (4,058), > ttable (2.97) and GIS (0.000) < 0.05).
- 3) Achievement affects the potential of participants in the boccia training program (tcount (3.111), > t table (2.97) and sig (0.024) < 0.05).

### (b) Coefficient of Determination (R2)

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The coefficient of determination is essentially used to measure how far the regression model is able to explain the variation of the dependent variable. The results of the coefficient of determination analysis can be seen in the following table:

**Table 9. Results of Coefficient of Determination Analysis (R2)**

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967a	.935	.907	.821
a. Predictors: (Constant), achievement, self evaluation, others (trainer competence)				

Based on the table of the results of the coefficient of determination analysis shows that the magnitude of the R Square (R2) value is 0.935. This means that 93.5% of the variation in participants' potential can be explained by variations in independent variables, namely self-evaluation, others (trainer competence), and achievement. The remaining 6.5% is explained by causes other than the model.

Furthermore, the magnitude of variation of each independent variable is explained by effective contribution and relative contribution. Effective contribution is a measure of the contribution of a variable or independent variable to the dependent variable in regression analysis. Relative contribution is a measure that shows the magnitude of the contribution of an independent variable to the sum of the squares of regression. The results of the analysis of effective contributions and relative contributions can be seen in the following table:

**Table 10. Effective Contribution and Relative Contribution of Each Independent Variable**

Variable	Effective Donation	Relative Donations
Self evaluation (X1)	33.6%	35.98%
Others (trainer competence) (X2)	32.0%	34.27%
Achievement (X3)	27.9%	29.75%
<b>Sum</b>	<b>93.5%</b>	<b>100.00%</b>

Based on the table above, it can be seen that 93.5% of the variation in potential participants can be explained by self-evaluation of 33.6%, others (trainer competence) of 32.0%, and achievement of 27.9%. Thus, it can be concluded that the self-evaluation variable (X1) has a more dominant influence on the potential participant variable (Y) than the other variables (trainer competence) (X2) and achievement (X3).

The results of the meta-analysis showed that self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) simultaneously affect the potential accuracy skills of throw boccia with a positive regression coefficient value. This means that self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) together have a positive impact on the potential of throw boccia accuracy skills in the boccia training program. This also shows that if self-evaluation, others (trainer competence), and achievement (achievement of participants' tasks in training) increase, then there is an increase in the potential of throw boccia accuracy skills and vice versa if it decreases then there is a decrease in the potential of throw boccia accuracy skills in the boccia training program. The results of the coefficient of determination test show that 93.5% of the potential of throw boccia accuracy skills can be explained by variations in self-evaluation, others (trainer competence), and achievement. The remaining 6.5% was explained by other causes outside the study variables. Of the 93.5%, 33.6% of the variation of potential participants is determined by self-evaluation, 32.0% of the variation of potential participants is determined by others (trainer competence), and 27.9% of potential participant variation is determined by achievement. Thus, self-evaluation has a more dominant influence on potential participants than other variables (trainer competence) and achievement.

### CONCLUSION

There is a relationship between participants' self-evaluation, others (trainer competence), and achievement with the potential throw accuracy skills of participants after undergoing the Boccia Pelatnas program training. This is indicated by  $F_{\text{calculate}} 33,500 > F_{\text{table}} = 4.35$  and  $\text{sig} = 0.000 < 0.05$ . The coefficient of determination shows that 93.5% of the variation in participants' potential is influenced simultaneously by self-evaluation, others (trainer competence), and achievement. Of the 93.5%, 33.6% of the variation of potential participants is determined by self-evaluation, 32.0% of the variation of potential participants is determined

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by others (trainer competence), and 27.9% of potential participant variation is determined by achievement. Thus, self-evaluation has a more dominant influence on potential participants than other variables (trainer competence) and achievement.

### REFERENCES

- 1) Affiza, S. M. B. P. (2022). *Faktor Pendukung Psychological Well-Being Pada Atlet Difabel Berprestasi*.
- 2) AM Kasih. (2022). *Evaluasi program pembinaan prestasi olahraga boccia menggunakan model cipp di pelatnas boccia npc indonesia*. 3(2), 6.
- 3) arimbi, poppy elisano arfanda, lita puspita. (2022). *Implementasi Ilmu Keolahragaan Dalam Perkembangan Olahraga Disabilitas Indonesia*.
- 4) Bakhtiar, S., & Ballard, R. J. (2015). *Teori Action, Method, Strength Condition dan Penerapannya dalam Pembinaan Prestasi Tenis*.
- 5) Candrawati, Y., Sugiyanto, S., & Ilahi, B. R. (2018). Evaluasi Program Pembinaan Prestasi Olahraga Bola Voli Pada SMK Negeri di Kota Bengkulu. *Evaluasi Program Pembinaan Prestasi Olahraga Bola Voli Pada SMK Negeri Di Kota Bengkulu*, 2(1), 44–48. <https://doi.org/10.33369/jk.v2i1.9186>
- 6) Creswell, J. W., & Creswell, J. D. (2018). Mixed Methods Procedures. In *Research Defign: Qualitative, Quantitative, and Mixed Methods Approaches*.
- 7) DR Saharullah. (2021). *Evaluasi Program Pembinaan Olahraga*.
- 8) Ferreira, C., Gamonales, J. M., Aleluia, M., Oliveira, A., Pardana, F., Santos, F., Espada, M., & Muñoz-Jiménez, J. (2022). Boccia in Paralympic Games: The evolution from 1984 to 2016 and future perspectives. *Cuadernos de Psicología Del Deporte*, 22(1), 205–214. <https://doi.org/10.6018/CPD.492031>
- 9) Haris, M. Al. (2022). *Manajemen Pembinaan Atlet Boccia Cerebral Palsy Di National Paralympic Committee Indonesia*. *Titafi Xxxv*.
- 10) Haris, M. Al, Doewes, M., & Liskustyawati, H. (2020). Development of Boccia Cerebral Palsy's National Athlete Achievement in the Indonesian National Paralympic Committee. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 3(2), 784–794. <https://doi.org/10.33258/birle.v3i2.940>
- 11) Hidayatullah, F. (2020). *Panduan Permainan Boccia Untuk Sekolah Luar Biasa*.
- 12) Kanaslan, E. K., & Iyem, C. (2016). Is 360 Degree Feedback Appraisal an Effective Way of Performance Evaluation? *International Journal of Academic Research in Business and Social Sciences*, 6(5), 172–182. <https://doi.org/10.6007/ijarbss/v6-i5/2124>
- 13) Kasih, A. M., Hidayatullah, M. F., & Doewes, M. (2020). Ketercapaian pelaksanaan program pembinaan prestasi olahraga boccia dengan menggunakan evaluasi CIPP di Pelatnas Boccia NPC Indonesia tahun 2019/2020. *Seminar Nasional KeIndonesiaan V Tahun 2020 "Negara Dan Tantangan Kenegaraan Kontemporer,"* 2(1), 247–252.
- 14) Lange, S., & TH10. (2014). *(Thesis) The Evaluation Of A Development Program Directed At The Trait Emotional Intelligence Of Employees Of The Ministry Of Justice In Northern Namibia*. February.
- 15) Łosień, T., Mędrak, A., Plaskacz, P., Bajerska, I., Reut, M., Dragon, E., Polko, M., & Cebula, A. (2018). The influence of boccia on self-esteem and increasing the functional capabilities of disabled people. *Journal of Education, Health and Sport*, 8(8), 1099–1105.
- 16) Matjan, B. N. (2009). Komponen-Komponen Latihan dan Faktor-Faktor Pendukung Kualitas Peak Performance Atlet. *Jurnal Kepelatihan Olahraga*, 1(1).
- 17) Nugroho, W. A., Umar, F., & Iwandana, D. T. (2020). Peningkatan Kecepatan Renang 100 Meter Gaya Bebas Melalui Latihan Interval Pada Atlet Para-Renang Sekolah Khusus Olahraga Disabilitas Indonesia (SKODI). *Jurnal Menssana*, 5(1), 56–65.
- 18) Nurdiantimala, R., Widyaarthara, A., & Pramitasari, P. H. (2021). Pusat Olahraga Penyandang Disabilitas ( Bola Voli Duduk Dan Boccia ). *Jurnal Pengilon*, 05, 323–338.
- 19) ODE, I. S. A. L. A. (2022). *Evaluasi Program Pusat Pembinaan Dan Latihan Olahraga Pelajar (Pplp) Sulawesi Tenggara*.
- 20) Priyambodo, B. (2018). Ketangguhan Mental Pada Atlet Ditinjau Dari Usia, Jenis Kelamin, Dan Pengalaman Bertanding. *(Doctoral Dissertation, Universitas Muhammadiyah Surakarta)*.
- 21) Purnomo, A. A., Cahayani, P. M., Waluyo, & Iwandana, D. T. (2022). Tingkat Kreativitas Guru Dalam mengatasi Keterbatasan Prasarana Sarana Pembelajaran PJOK. *Gelandang Olahraga*, 6(1), 27–35.
- 22) Rahman, S. E., & Jakarta, U. N. (2022). *Evaluasi Program Pembinaan Prestasi Cabang Olahraga Renang Menuju Paralympic Games Tahun 2021*.
- 23) Rahmawati, D., Wiyanto, A., & Setyawan, D. A. (2020). Manajemen National Paralympic Committee (NPC) dalam pembinaan

## The Relationship between Participant Self-Evaluation, Coach Competence, Participant Tasks Achievement and Participant Potential after Underwriting Boccia Training Program

prestasi atlet penyandang disabilitas. *Edu Sportivo: Indonesian Journal of Physical Education*, 1(2), 97–102. [https://doi.org/10.25299/es:ijope.2020.vol1\(2\).5661](https://doi.org/10.25299/es:ijope.2020.vol1(2).5661)

- 24) Ratna, D., Tangkudung, S. J., & Hanif, A. S. (2018). Evaluasi Program Pemusatan Latihan Daerah (Pelatda) Bolavoli Pasir Putri Dki Jakarta. *Jurnal Ilmiah Sport Coaching and Education*, 2, 8–16.
- 25) Rukmi, H. S., Novirani, D., & Ahmad, S. (2014). Evaluasi training dengan menggunakan model Kirkpatrick (Studi kasus Training Foreman Development Program di PT. Krakatau Industrial Estate Cilegon). *5th National Industrial Engineering Conference*, 131–138.
- 26) Widiyastuti, U., & Purwana ES., D. (2015). Evaluasi Pelatihan (Training) Level Ii Berdasarkan Teori the Four Levels Kirkpatrick. *Jurnal Pendidikan Ekonomi Dan Bisnis (JPEB)*, 3(2), 1. <https://doi.org/10.21009/jpeb.003.2.1>
- 27) Yunyun Yudiana, Herman subardjah, T. J. (2019). Latihan fisik. *Latihan Fisik*.



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## The Urgency of Character Education in Nashih Ulwan's Perspective for the "Strawberry Generation"



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**ABSTRACT:** In whatever environment we are in either school, home or social environment, character education is very much needed.. The education of human character can also gain glory as creation creature of Allah SWT but the Children Character now of the term popular "Strawberry Generation" is very concern. They are dependently with the gadget without being able to sort out the good and bad, and they make a strange acting and imitating anything, misconduct immorality, lying etc. This article uses a literature study approach because the autor commented on the concept of the thought of Abdullah Nashih Ulwan trough his book title Tarbiyatul Aulad fil Islam to answer the problem of character education "Strawberry Generation" According to him, the basic character education in Islam must be based on Al Quran and Al Hadist. Five steps in success of education character habituation, transparency advice, giving attention, and giving punishment. In addition, the character education material that includes the education of faith, morality, physical, intellectual, mental/psychic, social and sex education must be given to children so that they are ready to live a life well. The hole concept is very relevant in answering the issue of "Strawberry Generation". At that time, the children will face competition with colleagues from various countries around the world. Demand the quality of human resources in the millennium certainly requires good character. However, character is the key individual goal.

**KEYWORD:** Character Education, Strawberry Generation, Tarbiyatul Aulad

### A. INTRODUCTION

Islamic education, as a sub-system of national education, plays a significant role in contributing positively to the development of national education. Its greatest contribution lies in shaping individuals who are commonly referred to as "insan kamil" or "perfect human beings." The term "insan kamil" represents the ideal human being who is complete in terms of physical, spiritual, and psychological aspects and can live and develop normally while prioritizing devotion to Allah SWT, as well as internalizing the goodness of Allah within themselves. Explicitly, Islamic education is expected to produce individuals who are beneficial to themselves and others. Moreover, it emphasizes the practice and development of Islamic teachings, which have correlations with both Allah and humanity, while also promoting responsible stewardship of the world to ensure human well-being in both worldly life and the hereafter.

Character education, including Islamic character education, is among the types of education that have received critical attention in the Indonesian education system. However, in its implementation, character education still requires refinement. Criticism of education should focus on cognitive, psychological, and affective domains. Unfortunately, in practice, the affective domain (character) has not received the attention it deserves. Yet, upon closer examination, the affective domain holds essential principles for adhering to norms in life. Cultivating children who excel in character education with an Islamic approach is not easy and requires consistent efforts accompanied by perseverance, patience, and sincerity, as exemplified by the Prophet Muhammad SAW in fostering love and affection towards his companions. The Prophet also emphasized attention and compassion towards humanity by loving and caring for all.

Character education is now relevant not only in schools but also in the family and social environments. Furthermore, it is no longer limited to early childhood and adolescence but also applies to adults. This is done to address the challenges faced by our nation. One of the realities in the digital era and the rapid development of technology is the emergence of various terms, one of which is the "Strawberry Generation," often attributed to children born during the rise of digital natives and those who have interacted with digital technology since birth.

The Strawberry Generation symbolizes beautiful strawberries that are easily bruised and destroyed when stepped on. The birth of the Strawberry Generation is influenced by several factors, including the lack of parental guidance in educating and raising

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their children (Aullia et al., 2022). The generation is often associated with Generation Z, born roughly between 1995 and 2010. Although they are highly intelligent, they tend to be static in their development. They want to appear impressive but struggle to face new challenges (Rhenald Kasali, 2017, p. 4). They are obsessed with gadgets as a means of validating their existence, so much so that their daily activities revolve around smartphones or other devices. Their main objective is self-publication to let others know about their activities and behaviors, ultimately affirming their existence in the digital world. Moreover, they often misuse internet connectivity for browsing negative content such as violence, inappropriate behavior, and other harmful practices. As a result, their real-life behaviors and lifestyles are not in line with societal norms and values. Many Muslim scholars have proposed various perspectives and approaches to Islamic character education to address this issue.

Through this article, the author aims to present Abdullah Nashih Ullwan's perspective on the importance of character education as a solution to current problems. The study focuses on the following points: 1) How does Abdullah Nashih Ullwan propose the concept of character education in his book *Tarbiyatul Aulad*? 2) What is the relevance of the character education offered by Abdullah Nashih Ullwan in *Tarbiyatul Aulad* in addressing the issues of the "Strawberry Generation"? In line with these research objectives, this study intends to provide insights into character education according to Abdullah Nashih Ullwan as a reference to address the challenges faced in the education of contemporary children, known as the "Strawberry Generation."

### **B. METHOD**

The data required to understand the above problem consists of qualitative and descriptive information. Therefore, the most appropriate approach is library exploration, which involves gathering and analyzing qualitative and textual data rather than numerical data. The library exploration method involves collecting and analyzing data from various literary sources. The literature review discussed in this study focuses on analyzing the thought process of character education as presented in the works of Abdullah Nashih Ulwan, specifically his book "*Tarbiyatull Aulad*." By analyzing Nashih Ulwan's thought process, the key ideas and principles of character education are identified, which are then sought for their relevance in addressing the issues of character education in the "Strawberry Generation." As a result, there is no empirical field data presentation, as the emphasis is more on a detailed analysis of the study's data. The main data that becomes significant are the rational and evidence-based connections to the ideas presented.

The qualitative data available on character education by Abdullah Nashih Ulwan is gathered through a literature review and the use of books as primary sources. Verbal or written data, in written or oral form, is considered as documentary data (Prof. Dr. Sulgiolon, 2020). The intended documentary data in this study is the writings of Abdullah Nashih Ulwan himself as found in his book "*Tarbiyatull Aulad*," which then becomes a manual data source in the data collection process. Additionally, secondary data sources include writings from other authors that are relevant to Nashih Ulwan's ideas. Therefore, secondary data is extensively used by the researcher to discuss topics related to Islamic Education, character education, and the "Strawberry Generation." It should be noted that the specific data sources were traced through library research or the researcher's personal collection. The research process involves a technical approach, with the initial step being data analysis through reading the book "*Tarbiyatull Aulad*" multiple times in different editions.

### **C. RESULTS AND DISCUSSION**

#### **"The Strawberry Generation" and its Issues**

The phrase that has recently gone viral, especially among tech-savvy individuals who actively use social media platforms like Instagram, Twitter, Facebook, WhatsApp, Line, etc., is the term "Strawberry Generation." This term is often used to refer to the younger generation, particularly those who are obsessed with gadgets. However, in practice and reality, this term has gained negative connotations and is seen as frivolous, self-centered, absurd, inappropriate, and unsuitable for their age. The "Strawberry Generation" is commonly characterized by being "alay" (overacting), narcissistic, excessively self-promoting on social media, heavily dependent on gadgets, constantly chasing trends in the virtual world, not just in the real world, engaging in early romantic relationships, and exhibiting adult-like behavior, as well as seeking attention. (Claudia, 2018)

Understanding the meaning of "Strawberry Generation" from the aforementioned description, the actual usage of this term can have significant negative impacts. Some of the problems associated with the younger generation or the "Strawberry Generation" today include misguided upbringing that leads to societal frustration, passive dependency on technology rather than being tech-savvy, meaning that the "Strawberry Generation" is limited to being consumers rather than creators, resulting in laziness, skepticism, and behaviors that deviate from positive values and tend to engage in counterproductive and inappropriate actions throughout their lives. These behaviors include a tendency towards rebellion, spreading false information, and indulging in negative aspects of social media with harmful consequences. (Wiyono, 2018)

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### Concept of Character Education

Education is a process that aims to transform individual behavior, both at the individual and societal levels, through teaching, training, and development activities to achieve better and dignified outcomes. Education also involves the interaction between adult educators and young individuals (children) as learners, with educators providing guidance to learners as an effort to facilitate their journey towards adulthood based on the potential of social and cultural contexts, so that optimal adulthood and improved independent living can be achieved (Helrmawan et al., 2021).

Azyumradi Azra, as cited by AH. Choliron (2010), explains that education is the process of preparing the younger generation to face the future and to acquire more effective and efficient ways of living. The Second National Education System Law of 1989 states that education is a conscious effort to prepare learners through guidance, teaching, and training activities for their future. According to Gunawan (2014), education, from an Islamic perspective, can be seen from various aspects such as at-tarbiyah, at-taklim, at-takdzib, and ar-riyadah. Although education has different definitions, the general consensus is that education aims to lead individuals towards a better and more meaningful life.

According to Triyanto (2014), education, in a technical sense, is the effort to improve learning practices for individuals through structured programs, whether formal, informal, or non-formal, implemented both inside and outside of educational institutions and throughout various stages of life, with the aim of optimizing human potential to engage in appropriate life roles. The definition provided clearly indicates that the goal of education is to lead individuals towards a high-quality and holistic development. Fully developed individuals are those who have a harmonious relationship with nature, other individuals, and their Creator.

According to Abdul Majid and Dian Andayani, character, which originates from the Greek word "charasselin," means forming and shaping. Aulia Nur Hayati (2018) defines character as the nature, temperament, soul qualities, morals, and personal traits that distinguish each individual. Similarly, Zulbaeldi (2011) explains that character means marking and forming. Character is closely related to personality, as it encompasses the individual's nature, temperament, morals, values, ethics, and habits, making it distinctive from others.

Islam places great importance on character education, as evident in the advice of Luqman al-Hakim to his son, as mentioned in Surah Luqman (Quran, 31:12-19). These verses indicate that character education is focused on instilling goodness in the lives of individuals. Islam emphasizes the vital role of character education, which is reflected in the principles of Islamic education, such as fostering noble morals (akhlaqul karimah) based on the teachings of the Quran and Hadith, submitting to Allah's commandments, maintaining consistency in following Allah's laws, enriching knowledge, and leading individuals towards a better life according to Allah's guidance.

In other words, character education is the path to achieving "insan kamil" (a complete human being). In Islam, character education is comparable to the divine revelation and intellect. Islamic character education aligns with religious teachings and has its own uniqueness compared to Western versions of character education. The implementation of moral education in Islam is based on religious principles, guidance, and culture to promote moral behavior among the community. Divine revelation is the fundamental source of moral education in Islam, and consequently, character education is imparted through doctrinal and dogmatic approaches.

According to Dr. Abdullah Nashih Ullwan (2020), character education in Islam is fundamentally based on the Quran and Hadith. Therefore, the standards of goodness and righteousness in Islamic character can be clearly defined through the teachings of the Quran and Hadith. The judgment of whether something is good or bad in Islamic character can be determined through Islamic texts, rather than being subjective. Islamic education encompasses not only the systematic aspects of faith, worship, and transactions but also morals. Studying Islam, through the teachings of Prophet Muhammad, aims to rectify and improve the moral conduct and character of individuals in society. Islamic teachings go beyond mere rituals, worship, and transactions; they also encompass moral values. A comprehensive study of Islam, known as "kaffah," serves as a guide for the moral development of all Muslims. This approach has been exemplified through the noble qualities of Prophet Muhammad, who was known as "as-Siddiq" (the truthful), "al-Amin" (the trustworthy), "at-Tablig" (the conveyor of messages), and "at-Tafwiz" (the intelligent).

### The purpose of character

Education is to cultivate individuals with noble moral values. Education is not limited to the goal of advancing the nation's future solely through intellectual development. However, in line with societal progress, educational objectives have undergone changes, aiming not only to foster national progress but also to instill good character traits (Aullia Nur Hayati, 2018). Nata (2012) explains that character education is an educational approach that encourages individuals to practice virtues and transcend societal norms, thereby acquiring knowledge and understanding of righteous living. The objective of character education is to develop virtuous

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personalities in individuals within society, achieved through guidance and imparting essential values that should be embraced while discouraging negative behaviors.

Moral education, as viewed by Abdullah Nashih Ullwan in his book "Tarbiyatull Aullad," focuses on instilling a strong foundation of faith and Islam in the younger generation. Ullwan emphasizes the fundamental and universal nature of education, with character education being one of its key components. The values of character education, as outlined in "Tarbiyatull Aullad," include nurturing attention in children, enabling them to become more motivated learners, while parents or educators direct their attention towards appropriate activities to avoid deviant behaviors.

According to Abdullah Nashih Ullwan, character education (at-tarbiyah al-khullulqiyah) encompasses a set of principles that must be internalized by children, becoming habitual from an early age until they reach adulthood (baligh). Based on the author's perspective, the term "at-tarbiyah al-khullulqiyah" in the book "Tarbiyatull Aullad" is synonymous with character education. Ullwan emphasizes the importance of character education, and accordingly, he presents five ways that should be prepared to achieve holistic maturity, encompassing mental, moral, and physical aspects (Dr. Abdullah Nashih Ullwan, 2020). These five ways or methods are as follows:

### 1. Education Through Exemplary Behavior

Character education is considered crucial in addressing issues related to moral, spiritual, and social aspects of children. This is because exemplary behavior is seen as the most influential factor in shaping children's attitudes. Whatever children observe in their surroundings becomes their model for imitation. For example, many children nowadays are fascinated by K-Pop idols, as they constantly observe their surroundings, including K-Pop culture. Abdullah Nashih Ullwan encourages educators and parents to pay attention to cultivating virtuous habits.

This is vital because it provides guidance for children to navigate their future lives. Education through habituation becomes more effective when it meets certain conditions, namely: consistently promoting good habits as early as possible, providing vigilant and appropriate supervision, maintaining consistency and clarity, and eliminating mechanical and ballistic habits while listening to the child's inner voice. Moral modeling, as explained by Maragulstam (2018), indicates that individuals tend to internalize and emulate what they observe and experience. The most influential models are those closely related to individuals, such as parents, relatives, friends, and their idols. In Islam, the best role model is the beloved Prophet Muhammad (peace be upon him), as stated in the Quran, Surah Al-Ahzab, verse 21, which means, "Indeed in the Messenger of Allah, you have an excellent example for whoever seeks Allah and the Last Day" (Dr. Abdullah Nashih Ullwan, 2020).

### 2. Education through Advice

Providing advice can broaden a child's understanding of moral principles, leading to beneficial outcomes for the child and cultivating a compassionate heart with improved behavior towards others. The advice given should align with Islamic principles. It is not merely about beautiful words spoken but should come from the heart, as this will have a greater impact on children. Giving advice should be done with a calm demeanor, respecting the child's dignity and choosing the appropriate timing. For example, when a child is angry, it is better for parents or educators to offer advice when the child has calmed down or when their anger has subsided (Dr. Abdullah Nashih Ullwan, 2020).

There are many verses in the Quran that emphasize the importance of reminding one another to do good. We are familiar with the term "advice" from various verses, including Surah Adh-Dhariyat, verse 55, which states, "And remind, for indeed, the reminder benefits the believers." Numerous verses in the Quran highlight that a pure soul, a compassionate heart, and a sound and functioning mind readily accept and respond positively to words that touch the heart, advice that appeals, and reminders that are persistent (Dr. Abdullah Nashih Ullwan, 2020).

### 3. Education through Giving Attention

Education through giving attention involves cultivating a sense of attentiveness towards children and being attuned to their development. Paying attention to children is crucial as it enables immediate reminders when they become distracted or forgetful. Giving attention serves as a preventive measure against potential negative behaviors.

Maragulstam (2018) explains that moral feelings and values arise from a positive mindset. Having a positive mindset towards the good deeds performed and experiencing the consequences of those actions. Individuals feel motivated to engage in virtuous behavior because they understand and appreciate the benefits derived from it. Many individuals possess knowledge and understanding of good deeds but fail to practice them because they have not developed a genuine love and sense of the positive outcomes resulting from performing those actions.

By nurturing a culture of attention, educators and parents can create an environment that fosters a sense of responsibility and mindfulness in children. This approach helps in building their character, cultivating positive values, and reinforcing the importance of doing good deeds for the well-being of themselves and others.

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In conclusion, education through advice and giving attention plays significant roles in shaping the character of individuals. By providing meaningful guidance and being attentive to children's needs, educators and parents can contribute to their moral development and promote positive behavior in their lives.

### **4. Education through Punishment**

Implementing punishment for children is permissible in Islam but must adhere to certain criteria. The application of punishment should be done with gentleness and in accordance with the child's behavior and should progress gradually from milder to more severe measures. Maragulstam (2018) explains that punishment requires three conditions: 1) The beginning (Al-Bidayah) that involves purification by eliminating negative traits that hinder moral development. This stage encourages individuals to yearn for their Creator; 2) Striving for goodness (Al-Mujahadah) or what is known as self-discipline, continuously refining oneself with virtues and distancing oneself from undesirable traits. This involves cultivating qualities such as sincerity, humility, patience, gratitude, and more; 3) Experiencing (Al-Mushaqah) or what is known as divine manifestation, where individuals not only fulfill God's commands but reach a level of experiencing pleasure, closeness, longing, and being in the presence of their Lord.

### **5. Education through Habituation**

Educating through the cultivation of good habits is crucial for human life. Good habits that become ingrained in individuals can be utilized in their daily lives as positive behavioral patterns. Maragulstam (2018) explains that moral acting is achieved through consistent and habitual practice. Good habits are not limited to behavior alone but also encompass positive thinking, enabling a mindset that readily accepts change. The stages of habit formation include: Thinking, habituation, utilization, deviation, consolidation, and habit formation. If these stages are successfully navigated, character development becomes a natural outcome for Muslims because their character is shaped through their love for Allah SWT.

In summary, punishment, when applied with gentleness and adhering to the criteria outlined in Islam, can be part of education. Likewise, education through habituation focuses on cultivating good habits and positive thinking. Both approaches contribute to the moral and character development of individuals.

### **Character Education from Abdullah Nashih's Perspective**

Abdullah Nashih Ullwan presents several aspects of character education, which can be summarized as follows: Firstly, faith education involves teaching and instilling the foundations of faith in children through the habitual use of Islamic materials. Abdullah Nashih emphasizes that faith education should not be narrowly defined but should be viewed universally. It encompasses instilling noble moral values, worship (ibadah), Islamic teachings, and other Islamic principles.

Secondly, moral education is an integral part of character education. It is the responsibility of parents to cultivate and train children in virtuous behavior in their daily lives.

Thirdly, physical education aims to promote the overall physical development and health of individuals. According to Abdullah Nashih, physical education includes providing a suitable environment for children, such as providing proper nourishment, a good place to live, and halal food. This physical care contributes to the physical development of children.

Fourthly, intellectual education involves nurturing children's intellectual capabilities and exposing them to positive knowledge. It encompasses the acquisition of religious knowledge, various academic disciplines, social skills, and creativity, with the aim of broadening children's horizons globally. Intellectual education is as important as the aforementioned aspects of education and is interconnected with faith, moral, and physical education.

Fifthly, mental/psychological education focuses on providing early education to children, starting from early childhood, by teaching them tolerance, responsibility, self-confidence, independence, problem-solving, and achieving complete moral development. The goal of mental education is to balance children's emotional well-being with their moral development, enabling them to fulfill their obligations consciously and meaningfully.

Sixthly, social education involves instilling ethical principles in children from an early age to ensure good social behavior and adherence to Islamic norms. It involves teaching appropriate behavior and manners in society through practice and habituation, so that children can interact with others respectfully, respect the rights of others, and engage with people regardless of age, position, and other factors.

Lastly, sexual education aims to provide knowledge and education about healthy and proper sexuality and to teach children about gender differences. This enables them to lead a safe life and navigate through various social strata without succumbing to impulsive desires, which is a prevalent societal issue. These aspects of character education are interrelated and must be implemented collectively to realize Islamic character education. The ultimate goal is to foster noble and dignified individuals.

## The Urgency of Character Education in Nashih Ulwan's Perspective for the "Strawberry Generation"

### D. CONCLUSION

Firstly, the character education approach presented by Abdullah Nashih Ulwan, which includes five methods: habituation, setting an example, advice, paying attention, and providing fair judgments, is highly suitable to be implemented early on in children's lives to shape their character for the future. The characteristics of the "Strawberry Generation," who easily imitate others without proper discernment, can be transformed into noble individuals by instilling these five methods advocated by Abdullah Nashih Ulwan, thus ensuring a bright and virtuous future.

Furthermore, Abdullah Nashih Ulwan introduces various components of character education, including moral education, etiquette education, physical education, intellectual education, mental/psychological education, social education, and sexual education. These interconnected components form a holistic approach in cultivating Islamic character education for the "Strawberry Generation."

Moreover, character education approaches by Abdullah Nashih Ulwan remain relevant in addressing the challenges faced by the "Strawberry Generation," especially in dealing with the psychological issues arising from their immersion in the digital era. The integration of character education through habituation, setting an example, advice, paying attention, and providing fair judgments, particularly within Islamic education, such as faith education, worship education, and moral education, remains relevant and effective in addressing the problems of the "Strawberry Generation," allowing them to develop strong moral character and noble behavior from an early age.

### REFERENCES

- 1) Aulia Nur Hayati, L. U. (2018). Implementasi Pendidikan Karakter untuk Siswa Madrasah Ibtidaiyah Menurut Abdul Majid dan Dian Andayani. *Pendidikan Guru MI, Sinta 5*.
- 2) Aulia, S., Meilani, T., & Nabillah, Z. (2022). Strawberry Generation: Dilematis Keterampilan Mendidik Generasi Masa Kini. *JURNAL PENDIDIKAN, 31(2)*, 237. <https://doi.org/10.32585/jp.v31i2.2485>
- 3) Abdullah Nashih Ulwan. (2020). *Tarbiyatul Aulad (Pendidikan Anak Dalam Islam)* (Y. M. Mnsyur Alkatiri (ed.); ke enam). KHATULISTIWA PRESS.
- 4) Hermawan, A. R., Bariah, O., & Ramdhani, K. (2021). Pendidikan Moral pada Keluarga Muslim Perspektif Abdullah Nashih Ulwan dalam Kitab Tarbiyatul Aulad Fil Islam. *Edumaspul: Jurnal Pendidikan, 5(2)*, 812–822. <https://doi.org/10.33487/edumaspul.v5i2.1772>
- 5) Sugiono. (2020). *Metode Penelitian Kuantitatif Kualitatif dan R&D* (Sutopo(ed.); ke 2). CV. ALFABETA.
- 6) Rheinal Kasali. (2017). *Strawberry Generation* (Moh. Sidiq Nugraha (ed.)).



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## Implementation of Active Learning in Grade V to Enhance Creativity and Weaving Skills



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**ABSTRACT:** Active learning is a teaching method that emphasizes the active participation of students during the learning process. Quality education not only focuses on cognitive aspects but also considers other aspects. One aspect that needs attention is the development of weaving skills. This research employs a qualitative approach with an experimental design. The research subjects are Grade V students at MI Ya BAKII Kesugihan 01, Kesugihan District, Cilacap Regency. The aim of this research is to explain the positive impact of active learning in enhancing creativity and weaving skills, as well as to describe the steps taken by the teacher in actively teaching weaving. The results of the research indicate a positive impact of active learning in improving creativity and weaving skills.

**KEYWORDS:** Active learning, creativity, weaving.

### A. INTRODUCTION

The National Education Standards state that: "Education is a conscious and planned effort to create conditions for learning and the learning process, so that students play an active role in developing their potential to possess good spiritual and religious strength, self-control, intelligence, noble character, as well as the necessary skills for themselves, the broader community, nation, and country" <sup>1</sup>. The statement emphasizes the need for learning activities to achieve the mentioned goals. In order to develop students' spiritual and religious strength, self-control, intelligence, noble character, and essential skills, a structured and planned educational process is essential. Effective teaching and learning activities play a crucial role in helping students reach these objectives..

Learning is an intentional activity carried out to modify various conditions to achieve a goal, which is the curriculum objective. Curriculum is a series of plans and agreements related to the objectives, content of learning materials, and methods used as guidelines for teachers in the teaching process. <sup>2</sup>

A teacher is the primary key to education as they are directly involved in the learning process. Therefore, a teacher must have broad knowledge and insight, be creative, and possess a never-give-up spirit. Quality education doesn't solely focus on mastering academic subjects but also on developing students' skills and creative potential. One effective way to promote creativity and skills is through active learning. <sup>3</sup>

Active learning is a teaching method that emphasizes the engagement and participation of students throughout the learning process. Therefore, in this teaching model, the role of the teacher is that of a facilitator, to provide support for students by stimulating their engagement in physical, mental, social, emotional, and other aspects. As a result, the teacher's role is not as dominant in controlling the learning process. Since students are the subjects or actors, they are the active participants in this teaching model. This method allows students to be directly involved in exploration, discovery, and problem-solving, thereby enhancing their understanding and creativity.

<sup>1</sup> Annisa Fitrah, Yantoro Yantoro, and Suci Hayati, "Strategi Guru Dalam Pembelajaran Aktif Melalui Pendekatan Saintifik Dalam Mewujudkan Pembelajaran Abad 21," *Jurnal Basicedu* 6, no. 2 (2022): 2943–52, <https://doi.org/10.31004/basicedu.v6i2.2511>.

<sup>2</sup> Fitrah, Yantoro, and Hayati.

<sup>3</sup> I Malawi, A Kadarwati, and D P K Dayu, *Teori Dan Aplikasi Pembelajaran Terpadu* (books.google.com, 2019), <https://books.google.com/books?hl=en&lr=&id=MoCWDwAAQBAJ&oi=fnd&pg=PP1&dq=mengembangkan+kreatifitas+dan+ket+erampilan+anyaman+di+%22sd+mi%22&ots=bBbYC4loDj&sig=LPxyBhXTK2QQ7rYyonFHjE3mA6M>.

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Creativity is the ability to think in new ways, generate original ideas, and apply those ideas in everyday life. Roger, in *Child Development*, defines 'Creativity as the tendency to self-actualize, to realize potential, the urge to grow and become mature, the inclination to express and activate all the organism's capabilities.'<sup>4</sup> Supriadi stated that the characteristics of creativity can be grouped into two categories: cognitive and non-cognitive. Cognitive characteristics include originality, flexibility, fluency, and elaboration. Meanwhile, non-cognitive characteristics include motivational attitude and creative personality. Both of these traits are equally important; intelligence without a creative personality may not produce anything significant. Creativity is not solely a function of the brain; emotional variables and mental health play a significant role in the birth of a creative work<sup>5</sup>

The teaching of weaving skills has been recognized as an effective means to develop students' creative abilities. According to research, weaving enables students to develop critical thinking, problem-solving, and careful planning skills. Weaving also enhances fine motor skills, hand-eye coordination, and spatial understanding. Additionally, in the context of Madrasah Ibtidaiyah, weaving instruction encourages cooperation and social skills among students.

However, in reality, at MI Ya BAKII Kesugihan 01, many teachers are reluctant to teach weaving. When the researcher interviewed one of the teachers, Ms. Siti Fajriyah, S.Pd.I, about how often she uses active learning to improve weaving skills, she answered that she never does. Her reason is that generally, students feel difficulties or become pessimistic before even trying the weaving technique. It's a different story with Ms. Susriyati's response; she mentioned that she tried it once, but only 25% of the students were able to follow the weaving pattern demonstrated. The rest either cried, failed, or only partially completed the task.

Therefore, the researcher aims to understand the positive impacts of active learning on enhancing creativity and weaving skills when implemented in Grade V at MI Ya BAKII Kesugihan 01, as well as the steps that teachers should take to carry out active learning effectively in order to enhance creativity and weaving skills?

Based on the description above, the researcher is interested in conducting a research titled: "Implementation of Active Learning in Grade V to Enhance Creativity and Weaving Skills."

### B. RESEARCH METHODS

The research utilizes a qualitative approach with an experimental design. The research subjects are Grade V students at MI Ya BAKII Kesugihan 01, Kesugihan District, Cilacap Regency. Participants are purposively selected based on their proficiency in weaving skills. Data collection methods include classroom observations, interviews with teachers, analysis of student weaving products, and documentation. The learning process extends for two weeks, using an active learning approach that involves students in weaving activities, group discussions, and reflection.

### C. RESULT AND DISCUSSIONS

In the implementation of weaving skills learning in Grade V at MI Ya BAKII Kesugihan 01, several interesting findings were discovered. Firstly, students displayed a high level of interest and enthusiasm in weaving activities. They exhibited creativity in designing patterns and combining various weaving techniques. Additionally, students demonstrated the ability to work cooperatively, help each other, and share ideas within their groups.

Untuk To implement active learning in enhancing the creativity and weaving skills of 5th-grade students, here are several steps undertaken by the teacher:

- a. Group Division: The teacher divides the students into several groups and appoints a group leader.
- b. Providing Resources: The teacher can provide simple materials, in this case, cover paper, which will be used by the students in exploring and practicing weaving.
- c. Teaching Basic Weaving Techniques: The teacher can provide demonstrations, video tutorials, or written steps to guide students in learning these techniques.
- d. Providing examples of finished weavings.
- e. Using Weaving Projects: Provide challenging weaving projects to students, such as creating woven photo frames or wall decorations. Encourage them to think creatively in designing and crafting these weavings.

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<sup>4</sup> D N Sari, S Susilawati, and S Zulaiha, *Pengembangan Kreativitas Siswa Menghasilkan Karya Melalui Daur Ulang Sampah Pada Mata Pelajaran Seni Budaya Dan Keterampilan SDN 49 Rejang Lebong* (e-theses.iaincurup.ac.id, 2020), <http://e-theses.iaincurup.ac.id/id/eprint/1572>.

<sup>5</sup> A Badawi, S Sumanto, and ..., "Pelatihan Keterampilan Menganyam Untuk Meningkatkan Kualitas Pembelajaran Senirupa Bagi Guru Sekolah Dasar," *Abdimas Pedagogi: Jurnal ...*, 2019, <http://journal2.um.ac.id/index.php/pedagogi/article/view/10995>.



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- f. Organizing a Weaving Exhibition: After students complete their weaving projects, organize an exhibition at the school involving students, teachers, and parents. This exhibition will showcase students' weaving works and provide an opportunity for them to share their experiences and learning processes.



Image 1. Weaving Practice Process

Data analysis also indicates an improvement in students' weaving skills from the beginning to the end of the learning process. Initially, many students faced difficulties in controlling the weaving and following predetermined patterns. However, through an active learning approach that encourages exploration and hands-on experience, students managed to overcome these challenges and produce increasingly better weavings over time.

The findings of this research demonstrate that teaching weaving skills through an active learning approach has a positive impact on the development of creativity and skills among 5th-grade students at an Elementary Islamic School (MI). In the context of an MI, weaving instruction not only enhances students' technical skills but also strengthens their cooperation and social skills. Through group collaboration, students learn to support each other, share ideas, and appreciate diversity.

The implementation of the active learning approach also provides an enjoyable learning experience for the students. They feel more engaged in the learning process, have the freedom to explore, and take responsibility for their weaving outcomes. This can enhance students' learning motivation and strengthen their interest in developing weaving skills.

Enhancing the creativity of 5th-grade students through active learning offers several benefits, including: a) Improving Problem-Solving Abilities: In weaving, students face challenges in completing weaving patterns. By fostering creativity, students become more skilled at finding innovative and effective solutions. b) Developing Critical Thinking Skills: The weaving process requires students to think about the necessary steps and analyze the outcomes. Encouraging creativity helps students become accustomed to thinking critically and questioning existing concepts. c) Building Self-Confidence: When students successfully create weavings using their own creativity, they feel proud and confident in their abilities. This motivates them to continue innovating and trying new things.<sup>6</sup>

Other benefits of active learning in improving weaving skills include:

1. Creativity Development: Through active learning, students learn to think creatively, create new weaving designs, and explore various weaving techniques.
2. Fine Motor Skill Enhancement: Weaving requires good fine motor skills. Through consistent practice in active learning, students improve hand-eye coordination, as well as the speed and precision of their weaving movements.
3. Collaborative Learning: During the weaving process, students can collaborate, discuss, and assist each other in overcoming challenges. This enhances their social skills and strengthens relationships among students.
4. Increased Self-Confidence: When students successfully create unique and beautiful weavings, they feel proud and confident in their abilities.

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<sup>6</sup> P Darestika and S S P Jati, "Dinamika Pemberdayaan Masyarakat Pada Proses Produksi Sentra Industri Kerajinan Anyaman Bambu Indah Desa Wonoanti, Kecamatan Gandusari ...," *Historiography ...* (download.garuda.kemdikbud.go.id, 2022), [http://download.garuda.kemdikbud.go.id/article.php?article=3130520&val=27964&title=Dinamika pemberdayaan masyarakat pada proses produksi sentra industri kerajinan anyaman Bambu Indah Desa Wonoanti Kecamatan Gandusari Kabupaten Trenggalek 1991-2019](http://download.garuda.kemdikbud.go.id/article.php?article=3130520&val=27964&title=Dinamika%20pemberdayaan%20masyarakat%20pada%20proses%20produksi%20sentra%20industri%20kerajinan%20anyaman%20bambu%20indah%20desa%20wonoanti%20kecamatan%20gandusari%20kabupaten%20trenggalek%201991-2019).

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5. Appreciation of Culture and Local Heritage: By involving students in active weaving learning, they develop a deeper understanding of cultural values and local heritage. They learn to appreciate traditional handicrafts and understand the importance of preserving weaving skills in their community.<sup>7</sup>

### D. CONCLUSION

Based on the presented findings and discussions, it can be concluded that:

1. Teaching weaving skills through an active learning approach has a positive impact on the development of creativity and skills among 5th-grade students at the MI level. Students can develop technical skills, creativity, cooperation, and social skills. The active learning approach also provides an enjoyable learning experience and enhances students' learning motivation.
2. The teacher's steps in implementing active learning to enhance creativity and weaving skills include grouping students, providing resources, teaching basic weaving techniques, providing examples of finished weavings, using weaving projects, and organizing a school exhibition showcasing weaving outcomes.

### REFERENCES

- 1) Badawi, A, S Sumanto, and ... "Pelatihan Keterampilan Menganyam Untuk Meningkatkan Kualitas Pembelajaran Senirupa Bagi Guru Sekolah Dasar." *Abdimas Pedagogi: Jurnal ...*, 2019. <http://journal2.um.ac.id/index.php/pedagogi/article/view/10995>.
- 2) Darestika, P, and S S P Jati. "Dinamika Pemberdayaan Masyarakat Pada Proses Produksi Sentra Industri Kerajinan Anyaman Bambu Indah Desa Wonoanti, Kecamatan Gandusari ...." *Historiography ....* download.garuda.kemdikbud.go.id, 2022. [http://download.garuda.kemdikbud.go.id/article.php?article=3130520&val=27964&title=Dinamika pemberdayaan masyarakat pada proses produksi sentra industri kerajinan anyaman Bambu Indah Desa Wonoanti Kecamatan Gandusari Kabupaten Trenggalek 1991-2019](http://download.garuda.kemdikbud.go.id/article.php?article=3130520&val=27964&title=Dinamika+pemberdayaan+masyarakat+pada+proses+produksi+sentra+industri+kerajinan+anyaman+Bambu+Indah+Desa+Wonoanti+Kecamatan+Gandusari+Kabupaten+Trenggalek+1991-2019).
- 3) Fauzi, A, A Zohriah, and R A Lughowi. "PEMANFAATAN PERPUSTAKAAN SEBAGAI SUMBER BELAJAR MELALUI PEMBERDAYAAN GURU BIDANG STUDI." *J-ABDI: Jurnal Pengabdian ...*, 2022. <https://www.bajangjournal.com/index.php/J-ABDI/article/view/2652>.
- 4) Fitrah, Annisa, Yantoro Yantoro, and Suci Hayati. "Strategi Guru Dalam Pembelajaran Aktif Melalui Pendekatan Saintifik Dalam Mewujudkan Pembelajaran Abad 21." *Jurnal Basicedu* 6, no. 2 (2022): 2943–52. <https://doi.org/10.31004/basicedu.v6i2.2511>.
- 5) Jannah, Azaliyatul. "Konsep Dasar Belajar Aktif Dan Contoh Model Pembelajaran Inovatif," 2018, 1–11.
- 6) Malawi, I, A Kadarwati, and D P K Dayu. *Teori Dan Aplikasi Pembelajaran Terpadu*. books.google.com, 2019. <https://books.google.com/books?hl=en&lr=&id=MoCWDwAAQBAJ&oi=fnd&pg=PP1&dq=mengembangkan+kreatifitas+dan+keterampilan+anyaman+di+%22sd+mi%22&ots=bBbYC4loDj&sig=LPxyBhXTK2QQ7rYyonFHjE3mA6M>.
- 7) Sari, D N, S Susilawati, and S Zulaiha. *Pengembangan Kreativitas Siswa Menghasilkan Karya Melalui Daur Ulang Sampah Pada Mata Pelajaran Seni Budaya Dan Keterampilan SDN 49 Rejang Lebong*. e-theses.iaincurup.ac.id, 2020. <http://e-theses.iaincurup.ac.id/id/eprint/1572>.



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<sup>7</sup> A Fauzi, A Zohriah, and R A Lughowi, "PEMANFAATAN PERPUSTAKAAN SEBAGAI SUMBER BELAJAR MELALUI PEMBERDAYAAN GURU BIDANG STUDI," *J-ABDI: Jurnal Pengabdian ...*, 2022, <https://www.bajangjournal.com/index.php/J-ABDI/article/view/2652>.

## The Importance of Active, Innovative, Creative, Effective, and Fun Learning Applications On Natural Science Subject At Islamic Elementary School



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**ABSTRACT:** The active, innovative, creative, effective, and fun learning applications (PAIKEM) learning model comes from the concept that learning should be child-centered and should be fun therefore students are motivated to continue learning on their own without orders and also students do not feel burdened or afraid. For this reason, the pleasurable learning part becomes one of the important aspects of learning. Especially in science learning activities where teachers still use conventional methods, whereas the material in science learning is very interesting to learn when using fun learning. PAIKEM is one of the fun learning methods, besides motivating students to explore, create, and experiment is the goal of PAIKEM learning. This is to support students develop higher-order thinking skills, critical thinking, and creative thinking.

**KEYWORD:** PAIKEM learning, Natural Science Subject.

### INTRODUCTION

Learning is a process of interaction between students and the environment, consequential in a change in behavior for the better. And the teacher's occupation is to coordinate the environment to support the behavior change of students. Learning can also be interpreted as a conscious effort by educators to help students so they can learn according to their needs and interests. Here teachers perform as facilitators who provide facilities and create situations that support the improvement of students' learning abilities. Learning is one of the determining elements of whether graduates are good or not produced by an education system. It is like the heart of the learning process. Virtuous learning inclines to produce graduates with good learning outcomes too. Vice versa.

Education experts argue that the learning process in schools has tended to be teacher-centered. The teacher's job is to distribute the materials and the learners are given the responsibility to memorize all the knowledge. Target-oriented learning has been recognized as successful in short-term memory competitions, but it fails to equip learners to solve problems in long-term life.

Learning will be more meaningful for students to experience what they learn and not know; therefore, educators have struggled in every way to try to make what students learn at school that can be used in their daily lives.

Natural Science (IPA), is a science that studies nature and everything in it, as well as the phenomena that occur in it. There are many phenomena in everyday life connected to science. The general goal of studying science is for the well-being of human life over various efforts to apply everything that exists in nature. Science is a creative process and seeks various causes and effects of phenomena that happen in nature. Achievement in the teaching and learning process requires active, innovative, creative, effective, and fun learning strategies and patterns to arouse student learning creativity. Therefore, science learning in SD/MI must emphasize providing direct learning experiences through the application of process skills.

Piaget argues that "The level of psychological development of elementary school students is still at the concrete operational stage. Children easily understand complex and abstract concepts if attended by concrete examples in practicing their conceptual discovery efforts through real objects "(Winataputra, 1993). This means that at this stage the child/student will experience the beginning of rational thinking. It means that the learner has logical operations that can be applied to concrete problems. In this case, science learning in SD/MI is very appropriate to be implemented using active, innovative, creative, effective, and fun learning or abbreviated as PAKEM.

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## METHOD

In this writing, the author uses a descriptive method, which is a method based on existing facts or phenomena that empirically live on its users. The data used in the preparation of this paper comes from various literature relating to the issues discussed. Some of the main references used are articles on PAKEM or PAIKEM learning, Science Subject Concepts, printed and online journals, and several scientific articles sourced from the internet. The type of data obtained is varied, qualitative and quantitative. The writing method is literature study. Information obtained from various literature and compiled based on the results of studies of the information obtained. Writing is attempted to be related to one another and following the topics discussed.

## LITERATURE REVIEW

### 1. Definition of Active, Innovative, Creative, Effective, and Fun Learning (PAIKEM).

Learning that is currently being developed and widely introduced to all corners of the country is Active, Innovative, Creative, Effective, and Fun learning or abbreviated as PAKEM. It is called that because learning is designed to activate children or students and develop creativity so that it is effective but still fun. What is PAKEM or PAIKEM? PAKEM stands for Active Learning, Creative, Effective, and Fun. Or PAIKEM from Active, Innovative, Creative, Effective, and fun learning. (PAKEM ).

**Active** means that in the learning process, the teacher must create an atmosphere in such a way, so that students actively ask questions, ask questions and express ideas. Learning is indeed an active process of the learner in building his knowledge, not a passive process that only receives teacher lectures about knowledge. If learning does not provide opportunities for students to play an active role, then learning is contrary to the nature of learning. The active role of students is very important in the formation of creative generations who can produce something for themselves and others.

**Innovative.** Innovative learning is a learning process that always presents something new to eliminate boredom and boredom. Innovative learning always presents something new in every element of education, starting from the aspect of teacher models, materials, devices, and several other important elements. Innovative learning always updates those elements.

Innovative learning differs greatly from conventional learning which has become a habit in learning. The teacher builds an atmosphere of 'Learning is Fun' for all students which is the key that is applied in innovative learning. If students have instilled this in their minds, there will be no more passive students in class, feeling pressured by deadlines for assignments, the possibility of failure, limited choices, and of course boredom. Developing innovative learning can be done in ways that accommodate each student's characteristics and measure the absorption ability of each student. Understanding students' learning styles becomes important for the innovation process. Some students are capable of absorbing knowledge and skills by using visual (vision) and auditory (hearing) abilities and not a few students have the ability to absorb knowledge and skills kinesthetically (muscle and body stimulation/movements).

**Creativity** is also meant for the teacher to create a variety of learning activities to meet the various levels of ability of students. Fun is a pleasant teaching and learning atmosphere so that students focus their full attention on learning so that their attention ("time on task") is high. According to the research results, a high level of attention increases learning outcomes. Being active and pleasant is not enough if learning is not effective, that is, it does not produce what students master after the learning process takes place, because learning has several learning objectives that must be achieved. If learning is only active and fun but still ineffective, then learning is no different from playing ordinary games.

**Effective.** Effectiveness is an important point in the learning process. Whether the learning is effective or not can be seen from the extent to which the minimum targets of the basic competencies that have been set are achieved. Learning is called effective when learning has achieved the desired goals in education, such as mastering science and technology as teaching materials, and forming skills or learning abilities that are more effective and efficient. And learning will be said to be more effective if it can provide new experiences for students or also for teachers.

For the learning process to be effective, there are several things that teachers should have:

- Mastering the material well
- Mastering the model well
- Understand student learning styles
- Understand learning objectives
- Motivate students
- Not monotonous in using methods
- Teaches how to teach something
- Performs the assessment correctly

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**Fun.** Fun learning is a situation where students feel comfortable, and calm and no pressure in learning. Fun learning will always arouse students' curiosity about something. Students will focus on the learning material. School will be a place that is always missed and the teacher will always be a figure to look forward to.

Fun learning requires the support of classroom management and the use of learning media. A class that is artistic and equipped with sufficient facilities affects a pleasant learning climate that can also be created because the teacher can adjust the learning process to the characteristics of students and can build a humorous atmosphere in the classroom.

Generally, PAKEM can be described as follows:

1	Students are involved in a variety of activities that develop their understanding and abilities with an emphasis on learning by doing.
2	The teacher practices various tools and ways to generate enthusiasm including using the environment as a learning resource to make dancing learning fun for students.
3	The teacher organizes the class by displaying books and teaching materials that are more fascinating and provides a "Reading Corner"
4	The teacher applies more supportive and interactive learning, including group learning.
5	The teacher encourages students to find their way of solving a problem, to express their ideas, and involve students in creating their school environment.

### 2. Concepts and Nature of Science

The concept of science is an idea that unites scientific facts. According to Susanto explained that "The concept is a link between the facts that have a relationship" The learning objectives of science include: understanding the natural world, having the skills to gain knowledge in the form of process skills / scientific methods, having a scientific attitude in recognizing the natural world and solving the problems it faces. (Sulistiyorini, 2007: 15). Thus, science is very important if studied or taught in SD / MI because science can develop the potential possessed by students and can develop students' thinking skills through experiments conducted in the science learning process, besides that students can also be required to solve problems.

The nature of science is a science to find out, understand the universe systematically, and develop an understanding of science about natural phenomena that are poured in the form of facts, concepts, principles, and laws that have been tested.

Science is a collection of knowledge arranged systematically and its use is generally limited to natural symptoms. Its development is not only characterized by a collection of facts but by the scientific method and scientific attitude.

According to Sujana (2013) the nature of science or science when viewed from the point of technology, epistemology, and axiology there are three, namely science or science as a product, science or science as a process, and science or science as an attitude.

#### a. Science as a Product.

Science as a product is a collection of the results of activities of scientists for centuries that produce facts, data, concepts, principles, and theories. So the results in the form of facts are from empiric activities (based on facts), while data, concepts, principles, and theories in science are the result of analytic activities.

#### b. IPA as Process.

Science as a process is a strategy or method carried out by scientists in finding these things as an implication of findings about natural events or events. So, in the process, we can think about solving a problem that exists in the environment. Through this process, we can get scientific findings, and their appearance is in the form of scientific activities called scientific investigations.

#### 3. Science as a Scientific Attitude.

IPA as a scientific attitude means that in the process IPA contains ways of working, attitudes, and ways of thinking. And in solving problems or problems, a scientist tries to take an attitude called a scientific attitude. These attitudes include.

- a. Objective to the facts or reality
- b. Don't be hasty in drawing conclusions or decisions
- c. Open-hearted
- d. Can distinguish between fact and opinion
- e. Being impartial with a particular opinion without reasons based on facts.
- f. Do not base conclusions or facts
- g. Don't believe in superstition
- h. Perseverance and patience in solving problems
- l. Willing to communicate and publish the results of his findings to be investigated, criticized, and perfected.
- j. Can cooperate with others.

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k. Continuously curious about the what, why, and how of a problem or symptom that he encounters.

### 4. The Meaning of Active Learning for Students

In active learning, there are activities of speaking and listening, writing, reading, and reflection which lead students towards meaning. Students will try to identify the content of the lesson, ideas, and various things related to the topic being studied. The activeness of students in learning is a form of enthusiasm and enthusiasm for learning. In addition, students who are active in class can be used as an indicator that they are ready to participate in learning. Children as learners play a role in developing the knowledge and understanding they already have through activities and interactions with their environment. That way children can reach a deeper level of understanding, and are better able to analyze, evaluate, and synthesize ideas.

### 5. Application of fun science learning

A fun and memorable learning atmosphere will attract students to be actively involved so that learning objectives can be achieved optimally.

To create fun learning, several things must be done by the teacher including:

1. Greet students in a friendly and enthusiastic manner.
2. Create a relaxed atmosphere
3. Motivate students

#### 4. Using ice breaker

5. Using a variety of methods.

There are also effective ways to create a fun classroom atmosphere, especially in learning science, including:

1. Create a different room atmosphere. Monocle teaching method.
2. Increase interaction by provoking children's ideas. fishing for children's ideas.
3. Take advantage of technology.
4. Give equal attention to all children.

Then what kind of learning is interesting? At the beginning of the discussion, it was explained that learning science with the PAIKEM or PAKEM system or method is one of active, innovative, creative, effective, and fun learning. In science learning here can use learning methods. Various learning methods can be used as learning variations and of course, make the learning process more enjoyable. For example, with PAIKEM / PAKEM the following methods can be used:

- Demonstration method
- Discussion method
- Debate method
- The Jigsaw Method
- Case Study Method
- Field Trip Method
- Recitation method
- Practicum method and many more.

Below is an example of learning activities that use PAIKEM/PAKEM in science learning.

Teachers design and manage learning that encourages students to play an active role in learning	Teachers carry out learning with various activities, for example: <ul style="list-style-type: none"> <li>• Test</li> <li>• Group discussion</li> <li>• Solve the problem</li> <li>• Searching for information</li> <li>• Writing reports</li> <li>• Visits outside the classroom</li> </ul>
Teachers use a variety of learning aids and resources.	Following the subject the teacher uses, for example: <ul style="list-style-type: none"> <li>• Available tools/make your own</li> <li>• Picture</li> <li>• Case study</li> <li>• Source person</li> <li>• environment</li> </ul>

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The teacher adjusts the materials and learning activities to the student's abilities.	<ul style="list-style-type: none"> <li>• Students are grouped according to abilities (for certain tasks/activities)</li> <li>• Learning materials adapted to the ability of the group</li> <li>• Enrichment or correction assignments are given</li> </ul>
The teacher relates learning to the everyday experiences of students	<ul style="list-style-type: none"> <li>• Students tell or use their own experiences.</li> <li>• Students apply what they learn in their daily activities.</li> </ul>
Assess student learning and progress on an ongoing basis.	<ul style="list-style-type: none"> <li>• The teacher monitors student work</li> <li>• Teacher provides feedback.</li> </ul>

After the teacher has done the above, some things need to be considered in implementing PAKEM or PAIKEM. The following are things that need to be paid attention to in implementing PAKEM.

### a. Understanding the nature of the child/student

Children have the nature of curiosity and imagination. Village children, city children, rich people's children, poor people's children, Indonesian children, or non-Indonesian children - as long as they are normally born with both characteristics. Both of these characteristics are the basic capital for the development of critical and creative attitudes/thinking. Learning activities are one of the fields that we must cultivate so that they are fertile for the development of these two attributes of God's grace. The learning atmosphere is shown by the teacher praising children for their work, the teacher asking challenging questions, and the teacher encouraging children to do experiments, for example, is fertile learning as intended.

### b. Get to know the child individually

Students come from a variety of family environments and have different abilities. In PAKEM individual differences need to be considered and must be reflected in learning activities. All children in the class do not always do the same activities but differ according to their learning speed. Children who have more abilities can be used to help their weak friends (peer tutors). By regarding the child's abilities, we can help him when he gets into trouble so that the child learns optimally.

### c. Utilizing children's behavior in organizing learning.

As social beings, children from childhood naturally play in pairs or groups in playing. This behavior can be used in organizing learning. In carrying out tasks or discussing something, children can work in pairs or groups. Based on experience, children will complete tasks well, if they sit in groups, sitting like this makes it easier for them to interact and exchange ideas. However, children also need to complete tasks individually so that their talents develop.

### d. Develop critical thinking skills, creative and problem-solving skills.

Life is solving problems. It requires the ability to think critically and creatively. Critical to analyze problems and be creative to generate alternative solutions to problems. Both types of thinking, critical and creative, come from curiosity and imagination, both of which are present in children from birth. Because the teacher's task is to develop, among others, by frequently giving assignments or asking open-ended questions. Questions that start with the words "what happens if" are better than those that start with the words "what, how much, when" which are generally closed (only one correct answer).

### e. Developing the classroom as an engaging learning environment.

An attractive classroom is highly recommended in PAKEM. The results of student work should be displayed to fill such a classroom. In addition, the results of the work displayed fill the classroom like that. In addition, the results of the work on display are expected to motivate students to work better and cause inspiration for other students. What is displayed can be the results of individual, pair, or group work. Displays can include pictures, maps, diagrams, models, real objects, poems, essays, and so on. A classroom filled with displays of student work, and well organized, can help the teacher in the KBM because it can be used as a reference when discussing a problem.

### f. Utilizing the environment as a learning resource.

The environment (physical, social, or cultural) is a very rich source of children's learning materials. The environment can act as a learning medium, but also as an object of study (learning resource). The use of the environment as a learning resource often makes children feel happy in learning. Learning by using the environment does not always have to leave the classroom. Materials from the environment can be brought into the classroom to save costs and time.

### g. Provides good feedback to improve learning activities.

The quality of learning outcomes will improve if there is interaction in learning. Giving feedback from teachers to students is one form of interaction between teachers and students. Feedback should reveal students' strengths rather than weaknesses. In addition, the way of giving feedback must be polite. This is intended to make students more confident in facing further learning

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tasks. Teachers should consistently check students' work and provide comments and notes. Teacher notes related to student work are more meaningful for student self-development than just numbers.

### DISCUSSION

#### A. Definition of the PAIKEM learning model.

Paikem stands for Active, Innovative, Creative, Effective and Fun Learning. PAIKEM can be defined as a teaching approach (approach teaching) that is used with certain methods and various teaching media accompanied by arrangement of the environment in such a way that the learning process becomes active, innovative, creative, effective and fun. As for among the teaching methods that are very likely to be used to implement PAIKEM:

1. Plus Lecture Method
2. Discussion Method
3. Demonstration Method
4. Role play method
5. Simulation Method

Meanwhile, the description of the abbreviations for active, innovative, creative, effective and fun learning is as follows:

#### 1. Active learning

This means that the teacher's learning process must create an atmosphere in such a way that students can ask questions, question and express ideas.

According to Taslimuharrom, a learning process is said to be active (active learning) if it contains:

#### a. Attachment to the task (commitment)

It should be useful for students, with the needs of students and are related to personal interests

#### b. Responsibility

##### 1) Give authority to students to ask questions

##### 2) Teachers listen more and respect students' ideas and provide choices and opportunities for students to make their own decisions.

#### c. Motivation

This means that the teacher encourages students to actively seek, find and solve their own problems. He doesn't just feed disciples, nor is he like someone who pours water into water. For example :

- On the one hand, active teachers:
  - Provide feedback
  - Ask challenging questions
  - Discuss student ideas
- On the other hand active students:
  - Ask
  - Present ideas
  - Discuss other people's ideas with their own.

#### 2. Innovative

This means that the teacher's ability to use and own methods, approaches, learning resources in the learning process. For example On the one hand, teachers act innovatively in terms of:

- Using useful and dignified new materials/materials
  - Apply a variety of learning approaches in a new style
  - Modifying conventional learning approaches into innovative approaches that suit the circumstances of students, schools and the environment
  - Involve learning technology devices
- On the other hand, students also act innovatively in the sense of:
- Following innovative learning with applicable rules
  - Attempting to find materials / materials themselves from relevant sources
  - Using advanced technological devices in the learning process.



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### **3. Creative**

means having creativity and having the ability to be creative in learning. The active role of students in the learning process means that it will produce generations that are able to produce their interests and the interests of others. Creative is also intended so that teachers can create diverse learning so that it can meet various levels of student abilities

### **4. Effective**

This means success in achieving the target or at least achieving the basis that has been set in the results and the learning process, namely:

The teacher becomes an effective teacher, because:

- a. Over matter
- b. Teach and direct by example
- c. Value students and motivate students
- d. Understanding learning objectives
- e. Teaches problem solving skills
- f. Using a variety of methods
- g. Teaching how to learn something
- h. Carry out proper and correct assessments.

Students become effective learners, in the sense of:

- a. Master the knowledge and skills or competencies needed
- b. Gain valuable new experiences.
5. Pleasant

This means that the teacher must be able to create a pleasant, safe and comfortable atmosphere. This can directly activate the neo corte (brain work) and optimize the learning process, as well as increase self-confidence in children.

### **B. The basis for the emergence of the PAIKEM learning model and the characteristics of PAIKEM learning.**

1. The basis for the emergence of the PAIKEM learning model:
  - a. The transition from individuals (individual learning) to learning together (cooperative learning).
  - b. The transition from learning by rote (role learning) to learning to understand (learning for understanding).
  - c. The transition from knowledge-transmitted theory to interactive forms, process skills and problem solving.
  - d. The paradigm shift from teachers teaching students to learn
  - e. Shifting from traditional evaluation forms to authentic assessment forms such as portfolios, projects, student reports, or student performance.

The basis for the transition above, in accordance with PP No. 19 of 2005 concerning National Education Standards, article 19, paragraph 1 which reads:

*"The learning process in educational units is carried out in an interactive, inspirational, fun, challenging and motivating way for students to participate actively, and provides sufficient space for initiative, creativity and independence in accordance with the talents, interests and physical and psychological development of children."*

### **2. Characteristics of PAIKEM learning:**

- a. Student-centered

Learning :

- 1) The teacher as a facilitator.
- 2) The focus of learning is on students, not lecturers
- 3) Students learn actively
- 4) Students control the learning process and produce their own work, not just quoting from the teacher.
- 5) Fun learning (joy full learning)
- 6) Learning is oriented towards achieving certain abilities (competency based learning)
- 7) Complete learning (mastery learning)
- 8) Continuous learning (continuous learning)
- 9) Learning in accordance with the present and here (contextual learning).

### **C. Important roles and things that need to be considered in carrying out PAIKEM learning.**

1. The important role of PAIKEM learning:
  - a. More enabling students and educators to be both active and involved in learning.

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b. It allows teachers and students to do creative work together. The teacher seeks all creative ways to involve all students in the learning process. Meanwhile, students are also encouraged to be creative in interacting with fellow friends, teachers, subject matter and all learning aids, so that learning outcomes can increase.

2. things that need to be considered in carrying out PAIKEM learning, namely:

a. understand the characteristics of students.

Basically, children have high imagination and curiosity. All children are born with two potentials. Both are the basic capital for the development of critical and creative attitudes/thoughts. Therefore, learning needs to be used as a land that we cultivate so that it becomes a fertile place for the development of these two potential gifts from God.

b. Understanding the development of student intelligence.

As already explained, Jean Piaget divides the development of human intelligence/cognitive development into 4 stages, namely:

1) *Sensory-motor*(sensory-motor/0-2 years)

2) *Pre-operational*(pre-operational/2-7 years)

3) *Concrete-operational*(concrete-operational/7-11 years)

4) *formal operations*(formal-operational/11 years and over)

During the period of primary and secondary education, students experience concrete-operational and formal-operational stages. In the concrete-operational period that lasts until adolescence, children gain additional abilities called systems of operations (thought steps). This ability is useful in coordinating his thoughts and ideas with certain events into his own thinking system.

Furthermore, in the cognitive development of the formal-operational stage a teenager has the ability to coordinate both simultaneously and sequentially two kinds of cognitive abilities, namely: a) the capacity to use hypotheses, b) the capacity to use abstract principles. Hypothesis means thinking about something, especially in terms of solving problems using basic assumptions that are relevant to the surrounding environment, for example related to abstract sciences such as monotheism, mathematics, and other abstract sciences.

c. Get to know individual students

Students who have more abilities can be used to help their friends. The point is to create an even distribution of the educational process.

d. Utilizing student behavior in organizing learning

As social beings, children from childhood naturally play in pairs and groups, so that these characteristics can be utilized in organizing learning. Like group assignments, but also don't forget individual assignments so that individual talents develop.

e. Develop critical thinking skills, creative, and problem solving skills.

The teacher's task is to develop a sense of criticality and creativity in solving a problem, for example by frequently giving assignments or asking open-ended questions and allowing students to think for reasons and make critical analyses. Just as questions with the words "why", "how" are better than questions with "what" and "where"

f. Developing the classroom as an interesting learning environment.

Classrooms are full of displays of student work (formulas, tables, diagrams, etc.), and are well laid out, can help both teachers and students in learning activities, because they can be used as a reference when discussing a problem.

g. Utilizing the environment as a learning resource

The use of the environment as a learning resource so that students feel happy in learning, the environment (physical, social and cultural) can use the environment does not have to be outside the classroom. Materials from the environment can be brought into the classroom. So it can save time and costs. Utilization of the environment can develop a number of skills such as observing, taking notes, formulating questions, hypothesizing, classifying, writing, and making pictures.

h. Provide good feedback to improve learning activities.

Providing feedback from the teacher to students is a form of interaction between the two, the feedback given by the teacher should be done politely, so that it does not dampen students' desire to learn but on the contrary can motivate students' enthusiasm for learning.

i. Distinguish between physical and mental activity.

Physically active, such as sitting in groups and face to face, is not an assessment in Paikem learning, but mentally active, such as frequently asking questions, supporting other people's ideas, and being calm in delivering material or in answering questions is what counts in Paikem, the development of fear is very contrary to PAIKEM principles.

### D. The strengths and weaknesses of the PAIKEM learning model.

1. The advantages include:

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- a. Learning is more interesting or recreational
  - b. There is activeness of students both physically, mentally and emotionally
  - c. There is teacher and student interaction
  - d. Learning is more varied (not boring)
2. Weaknesses, among others:
    - a. Teachers have to go the extra mile in applying this learning.
    - b. Teachers must be able to create a conducive classroom.
    - c. Teachers who do not have high creative power will not be able to apply the Paikem learning method.

### E. Application of the PAIKEM learning model.

Master's ability	Learning Activities
Teachers design and manage learning activities that encourage students to play an active role in learning	Teachers carry out various learning activities, for example: Test group discussion Solve the problem Searching for information Writing reports/stories/poems Visit outside the classroom
Teachers use a variety of learning aids and resources	According to the subject, the teacher uses, for example: Available tools or self-made ones. Picture Case study Source person Environment
The teacher provides opportunities for students to develop their skills	Student : Conduct experiments, observations, or interviews. Collect data/answers and process them yourself Draw a conclusion Solve the problem, look for your own formula Write reports/other works in your own words
The teacher provides opportunities for students to express their own ideas orally or in writing	Through : Discussion More open questions The results of the work are the students' own thoughts.
The teacher adapts learning materials and activities to the students' own abilities	Students are grouped according to ability (for certain activities) Lesson materials adapted to the ability of the group. Remedial or enrichment assignments are given
The teacher relates learning activities to the everyday experiences of students	Students tell or use their own experiences Students apply what they learn in their daily activities
Assessing learning activities and student learning progress continuously	The teacher monitors student work The teacher provides feedback

To apply PAIKEM the teacher must also create a learning syntax. The PAIKEM learning syntax is essentially a reduction of various learning models. The example of paikem syntax that uses the lecture model or method plus role playing (role playing)

Stage	Learning Activities
Stage 1 Introduction, motivating student groups, namely role/player groups and groups of spectators and observers.	The teacher offers a good problem, : The problems are real The problem is related to student life The problem stimulates students' curiosity

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	This problem is problematic and allows various alternative solutions to be used
Stage 2 Choose a role	The teacher and students discuss and agree on the description of the character to be portrayed. Offer those roles to deserving students.
Stage 3 Prepare observers	Observer : Assess the level of suitability of the role to be played with the real problem Assess the level of effectiveness of the behavior shown by the actor Assessing the actor's level of appreciation of the character (role played)
Stage 4 Prepare for the stages of the role	Setting up the cast scene Prepare places and facilities that support the story
Stage 5 cast	Actors begin to play their respective roles Time is based on the complexity of the problem being played
Stage 6 Discussion and evaluation	The teacher with the actors and observers exchange ideas to assess the parts that have not been played by the actors perfectly
Stage 7 Repetition of the cast.	Repetition of imperfect to perfect casting
Stage 8 Discussion and re-evaluation	Reviewing the re-enactment in stage 7, discussion and evaluation of the system is the same as in stage 6
Stage 9 Share experiences and draw generalizations	Draw the main benefits contained in role playing (helping students gain some valuable new experiences through interaction activities with others)

### CONCLUSION

The PAIKEM / PAKEM learning model comes from the concept that learning should be child-centered and learning should be fun so that students are motivated to continue learning on their own without being ordered and so that students do not feel burdened or afraid. For this reason, the aspect of fun learning becomes one of the important aspects of learning. Especially in science learning activities where teachers still use conventional methods, even though the material in science learning is very interesting to learn when using fun learning. PAIKEM / PAKEM is one of the fun learning methods, in addition to being an effort to continue to motivate students so that students conduct exploration, creation, and experimentation as well as PAIKEM learning objectives help students develop high-level thinking skills, critical thinking, and creative thinking.

### REFERENCES

- 1) Ahmadi, Sofyan, A. (2011 ). PAIKEM GEMBROT ( Pengembangan Pembelajaran Aktif, Inovatif, Kreatif, Efektif, Menyenangkan, Gembira , dan Berbobot. Jakarta : PT Prestasi Pustakarya
- 2) Indrawati. 2005. Model pembelajaran langsung. Bandung : Pusat Pengembangan dan Penataran Guru Ilmu Pengetahuan Alam Dikdasmen.
- 3) Pamungkas, A., Subali, B., & Lunuwih, S. ( 2017 ) Implementasi Model pembelajaran IPA berbasis kearifan Lokal untuk meningkatkan kreativitas dan hasil belajar siswa. Jurnal Inovasi pendidikan IPA , 3(2), 118-127
- 4) Khairani, C. (2015 ) . Strategi Pembelajaran Paikem (Scrambel ) dan Peningkatan Motivasi Belajar siswa SDN 6 Selebung Ketangga. Palapa : Jurnal studi keislaman dan ilmu pendidikan, 3 (1), 23-39 <https://doi.org/10.36088/palapa.v3i1.750>.
- 5) Hayati, S., & Lailatussasaadah. (2016 ). Validitas dan Reliabilitas Instrumen Pengetahuan pembelajaran Aktif, kreatif dan menyenangkan (Pakem ) menggunakan model Rasch. Jurnal ilmiah didaktika, 16(2) 169-179. <https://doi.org/10.22372/jid.v16i2.593>

## The Importance of Active, Innovative, Creative, Effective, and Fun Learning Applications On Natural Science Subject At Islamic Elementary School

- 6) Darmadi, H (2015) .Tugas, peran, kompetensi dan Tanggung jawab menjadi guru profesional. Jurnal edukasi, 13 (2). <https://doi.org/10.31571/edukasi.v13i2.113>
- 7) Marjuki, (2016) . 181 Model Pembelajaran Paikem Berbasis pendekatan Saintifik .Bandung : Remaja Rosdakarya
- 8) Kulsum, Umi. (2011) .Implementasi Pendidikan Karakter Berbasis PAIKE<. Surabaya : Gena Prataman Pustaka
- 9) Hamzah B. (2012) . Belajar dengan Pendekatan PAIKEM, Cet. III . Jakarta : PT Bumi Aksara.



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## Analysis of Financial Ratio to Profitability in PT. Pegadaian Indonesia 2008-2022



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**ABSTRACT:** This article aims to know and analyze the effect of liquidity ratios, solvency ratios, and activity ratios on profitability ratios at PT Pegadaian Indonesia. The population of this research is PT Pegadaian Indonesia. The sample used in this study is the 2008-2022 financial statements of PT Pegadaian Indonesia. The type of data used in this study is secondary data in the form of PT Pegadaian's annual financial reports for the 2008-2022 period. Sources of data were obtained through the website [www.pegadaian.co.id/ Reports-Performance/ Report- Annual](http://www.pegadaian.co.id/Reports-Performance/Report-Annual). The data analysis method used is multiple linear regression analysis. The results showed that the liquidity ratio had a significant positive effect on profitability; PT Pegadaian Indonesia had sufficient assets to pay off its short-term obligations so that the company's operational activities were not disrupted. The solvency ratio has a significant positive effect on profitability; the increasing company debt used for operational financing will generate profits so that the company is still able to fulfill its obligations. The activity ratio does not have a significant negative effect on profitability; PT Pegadaian Indonesia is likely to be more concerned with repaying creditors than using cash to pay returns to shareholders so that no matter how much the value of income received by utilizing assets owned does not affect the profitability obtained.

**KEYWORDS:** Activity Ratio, Liquidity Ratio, Profitability Ratio, Solvency Ratio

### I. INTRODUCTION

The Indonesian economy in 2020 will experience deflation because economic development in Indonesia has an unstable movement. The changes that occurred were influenced by the Covid-19 pandemic. Regulations regarding the PPKM (Implementation of Restrictions on Community Activities) policy causing a lockdown aimed at breaking the spread of Covid-19. The government previously implemented the PSBB (Large-Scale Social Restrictions) policy which took place in several regions of Indonesia. This policy led to an increase in economic decline in formal and non-formal companies. The economic downturn has led to layoffs (PHK) caused by companies not being able to pay the wages they should have.

The PPKM policy on the economy has had a huge impact on business people at the micro or small business level; of course, during the Covid-19 pandemic, the financial institution PT. Pegadaian is in great demand by the public because of the easy and fast way of borrowing [10]. Pegadaian is the only business entity in Indonesia that officially has permission to carry out financial institution activities in the form of payments in the form of channelling funds to the public based on pawn law [12]. Pegadaian, according to Kasmir (2016: 231) [6], is a financial institution that officially has permission to carry out its operational activities in the form of credit financing to the public in the form of channelling funds with relatively small or large amounts of funds on a pawn basis, as deposit services, and as appraisal services [6]. The pawned item must have economic value so that it can be used as an estimated value by the pawning party.

PT. Pegadaian has a program that aims to help the community in increasing economic resilience during a pandemic. Credit restructuring and relaxation as well as distribution of MSME subsidies, meaning that Pegadaian provides flexibility in the form of relaxation of exemption from late instalment fines such as loan restructuring to MSMEs and people who use micro products so that the business continues to run. Pawns care about 0% or pawn without interest, PT. Pegadaian provides loans to customers up to IDR 1,000,000.00 and provides an extension of the auction maturity period from 15 days to 30 days. PT Pegadaian recorded a 21.4% increase in customers from 15 million people on 30 June 2020 to 18 million people on 30 June 2021. The addition of these customers had an impact on increasing the turnover of the pawn business, growing 6.1 % from

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Rp.75.57 trillion to Rp. .80.18 trillion. The increase in turnover consisted of conventional pawnshops increasing 5.9% from Rp.64.21 trillion to Rp.67.98 trillion and Islamic pawnshops rising 7.4% from Rp.11.36 trillion to Rp.12.2 trillion. Main Director of Pegadaian Kuswiyoto stated the Covid-19 pandemic was sufficient to pose a challenge to Pegadaian's business performance, resulting in a slowdown in financial performance. However, in the midst of current economic difficulties, Pegadaian continues to provide the best financial solutions for the community ([www.pegadaian.co.id](http://www.pegadaian.co.id)).

**Table 1. Financial data from PT. Pegadaian Indonesia from 2008 to 2022**

Tahun	Total Aktiva (dalam jutaan rupiah)	Pendapatan (dalam jutaan rupiah)	Beban (dalam jutaan rupiah)
2008	10.772.086	2.930.594	2.045.976
2009	15.859.464	4.036.386	2.949.438
2010	20.283.042	5.378.292	3.827.785
2011	26.219.352	6.600.927	4.674.268
2012	29.331.898	5.833.074	3.967.111
2013	33.469.356	7.864.767	5.327.788
2014	35.344.988	7.800.893	5.556.650
2015	39.157.959	8.897.166	6.323.991
2016	46.873.892	9.708.058	6.707.875
2017	48.687.094	10.522.797	7.184.828
2018	52.791.188	11.464.462	7.829.860
2019	65.324.177	17.693.653	13.485.100
2020	71.468.960	21.964.403	19.173.144
2021	65.775.938	20.639.861	17.403.139
2022	73.329.790	22.876.587	18.551.282

Source: [pegadaian.co.id](http://pegadaian.co.id)

Based on Table 1 above, it can be seen that total assets and income from 2008 to 2022 have increased, but in 2012 and 2021 they have decreased. Likewise operating expenses have increased from 2008 to 2022 and decreased in 2012 and 2021. PT. Pegadaian Indonesia recorded a net profit in the first half of 2013 of IDR 718 billion, a decrease of 22.71 percent compared to 2012 of IDR 929 billion. Pegadaian Indonesia's finance director said that the decline in net profit was triggered by the decline in gold prices on the international market. The decrease in net profit at PT Pegadaian Indonesia in 2013 had no impact on revenue, assets and number of customers. The gold pawnshop business until June 2013 was able to generate revenue of IDR 46 trillion, increasing rapidly from the previous IDR 43 trillion, and at the same time, sharia-based gold pawning income reached IDR 6 trillion, up 8.6% from the previous IDR 5.5 trillion. The pawnshop business as a whole is still increasing due to the declining gold price, which affects net profit. The number of Pegadaian customers still increased by around 15% to 14.4 million in the first half of 2013 from the previous 13.7 million customers ([www.antaraneews.com/berita/388591/laba-pegadaian-turun-2271-persen](http://www.antaraneews.com/berita/388591/laba-pegadaian-turun-2271-persen)). Pegadaian Secretary R. Sumono Amoeng Widodo, the performance of pawnshop financing has decreased in 2021. Based on OJK data as of October 2021, financing and loans disbursed by PT. Pegadaian reached IDR 52.77 trillion, down 7.95% year on year (yoy). This decline in performance was due to a decline in gold prices which began to occur in the third quarter of 2020. According to R. Sumono Amoeng Widodo, if, as of August 2020, the average gold price reaches the highest point of Rp. 935,000, then as of August 2021, it will only reach Rp. 826,000, or a decrease of 12% year on year (financial Bisnis.com).

The decline in gold prices had an impact on Pegadaian's business performance, especially the pawn business, where more than 90% of the collateral used as collateral was gold jewelry. The decline in gold prices also affected customer behavior, one of which was not making mortgage redemptions or giving up collateral for auction because the selling value had decreased. Other factors causing a slowdown in the company's business include the declining ability of customers to repay non-mortgages or micro credit due to the impact of the pandemic and the existence of social assistance and credit from the government so that the community's financial needs are relatively fulfilled without having to mortgage their assets.

Eid al-Fitr during the pandemic has also affected the pawn business because the trend of redemption of pawns will be massive ahead of the Eid al-Fitr holiday and will generally be followed by the trend of pawning again after Eid. Eid al-Fitr 2021 is different from previous years because the decline in people's purchasing power during the pandemic also contributed to the slowdown of the repeat order process after Eid. The results of an internal survey also state that the majority of these customers have sold collateral that is usually mortgaged.

Assessment of PT. Pegadaian on financial performance is very important to do to find out how the financial condition of a company and how the company's activities are carried out, and in which direction the company's condition tends to move. To determine the condition and financial performance of a company, the variables analyzed in this financial performance assessment are the company's financial statement. According to Hasan and Gusnadi (2018:02) [5], financial statements are a structured presentation of the financial position and financial performance of an entity. The objective of financial reports is to provide information about the financial position, financial performance, and cash flows of an entity that is useful to a wide range of report users in making economic decisions. One of the analytical tools for financial statements is to use financial ratio analysis. According to Dawam et al. (2018) [4], financial ratios are the main tool in financial analysis, while the purpose of financial ratio analysis is to assess and can be used as a framework for financial planning and control for the benefit of financial

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performance. Financial ratio analysis, according to Darmawan (2020: 2) [3], is a quantitative analysis of the information contained in the company's financial statements used to evaluate various aspects of the company's operations and financial performance, such as liquidity ratios, activity ratios, solvency ratios, and profitability ratios. Based on this opinion, by knowing the level of a company's financial ratios, it can be known the condition of the company so that it can measure the level of financial performance in the company.

The liquidity ratio is a ratio that describes a company's ability to meet short-term obligations. Another function of the liquidity ratio is to show or measure a company's ability to meet its maturing obligations, both its obligations to parties outside the company and within the company (Kasmir, 2019: 110) [6]. The solvency ratio is the ratio used to measure the extent to which a company's assets are financed by debt. In a broad sense, it is said that the solvency ratio is used to measure a company's ability to pay all of its obligations, both short-term and long term, if the company is dissolved (Kasmir, 2019: 151) [6]. The activity ratio is the ratio used to measure the company's effectiveness in using its assets, or it can also be said that the activity ratio is used to measure the level of efficiency (effectiveness) in the utilization of company resources. efficiencies carried out, for example, are in the areas of sales, inventory, collection of accounts receivable, and efficiency in other fields. The activity ratio is also used to assess the company's ability to carry out daily activities. From the measurement results with the activity ratio, it will be seen whether the company is more efficient and effective in managing its assets (Kasmir, 2019: 172) [6]. The profitability ratio is the ratio to assess the company's ability to make a profit. The profitability ratio provides a measure of the effectiveness of the management of a company; this is shown by the profit generated from sales and investment income (Kasmir, 2019: 196) [6].

Empirical studies show that liquidity has a significant negative effect on profitability [1,9]. Furthermore, empirical studies show that solvency has a positive effect on profitability [7,2]. And an empirical study which showed that activity had no significant negative effect on profitability [11,7].

Based on the theoretical review and empirical studies above, the hypotheses in this study are as follows (H1) Liquidity has a significant negative effect on profitability at PT Pegadaian Indonesia in 2008 - 2022 (H2) 2022.

The objectives of this study include (1) Knowing and analyzing the influence of the liquidity ratio on profitability at PT Pegadaian Indonesia in 2008 – 2022, (2) Knowing and analyzing the effect of the solvency ratio on profitability at PT Pegadaian Indonesia in 2008 – 2022 (3) Knowing and analyzing the effect of the activity ratio on profitability at PT Pegadaian Indonesia in 2008 – 2022.

## II. RESEARCH METHOD

### A. Research Design

This study uses explanatory research, which is a type of research that aims to analyze the relationships between liquidity ratios, solvency and activity on profitability at PT Pegadaian Indonesia in 2008 – 2022.

### B. Population and Sample

The population in this study is PT Pegadaian Indonesia. The sample used in this study is the financial statements of PT Pegadaian Indonesia for 2008-2022.

### C. Data Types and Sources

The type of data used in this study is secondary data in the form of PT Pegadaian's annual financial reports for the 2008-2022 period. Sources of data were obtained through the website [www.pegadaian.co.id/Reports-Performance/ Report-Annual](http://www.pegadaian.co.id/Reports-Performance/Report-Annual).

### D. Data Analysis Method

The data analysis method used in this study is multiple linear regression analysis.

## III. RESULTS AND DISCUSSION

### A. Description of Statistics

Table 2 shows a description of each research variable, namely liquidity (X1), solvency (X2), activity (X3) and profitability (Y). The minimum value shows the lowest value of the data collected. The maximum value shows the highest value of the data collected. The mean value describes the average of the data collected. The standard deviation value is the fluctuation of the average value for each research variable.



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Table 2. Statistical Description

	N	Minimum	Maximum	Mean	Std. Deviation
Likuiditas	15	1,253	1,675	1,46850	0,120649
Solvabilitas	15	1,505	5,432	3,02018	1,477294
Aktivitas	15	0,199	0,314	0,25294	0,037325
Profitabilitas	15	2,830	5,833	4,90913	0,804798
Valid N (listwise)	15				

Source: processed data, 2023

Liquidity (X1) which in this study is proxied by CR is a ratio that compares short-term liabilities with short-term resources (current assets) available to fulfill these short-term obligations. Based on Table 2, it can be seen that the minimum value of the liquidity variable is 1.253 occurring in 2020, while the maximum value of the liquidity variable is 1.675 occurring in 2014. The liquidity variable in the period 2008 – 2022 shows a mean of 1.46850 with a standard deviation of 0.120649 which means that the data on the liquidity variable has a narrow distribution because the standard deviation value is smaller than the average value. This shows that the level of liquidity from year-to-year PT Pegadaian Indonesia is relatively the same.

PT Pegadaian Indonesia's liquidity for 2008-2022 is above 1; as a general guideline, the level of liquidity proxied with a CR above 1 is considered good. Based on fluctuations in financial data, PT. Pegadaian Indonesia was downloaded via the padawan.co.id website. In 2012, there was a decrease in revenue, and in 2021, there was a decrease in net profit. Because in 2012, it only excelled in gold sales when compared to 2013, when there was a decline in gold prices but was superior in terms of income and customers. In 2021 there will be a decline in the price of gold resulting in the financial performance of PT. Pegadaian Indonesia experienced a decline, but this did not impact the liquidity of PT Pegadaian Indonesia.

Solvency (X2), which in this study is proxied by DER is a ratio that describes its financial obligations if the company is liquidated, both short-term and long-term financial obligations. Based on Table 2, it can be seen that the minimum value of the solvency variable is 1.505 in 2021, while the maximum value of the solvency variable is 5.432 in 2011. The solvency variable in the period 2008 – 2022 shows a mean of 3.020184 with a standard deviation of 1.47729 which means that the data on the solvency variable has a narrow distribution because the standard deviation value is smaller than the average value. This shows that the level of solvency from year-to-year PT Pegadaian Indonesia is relatively the same.

PT Pegadaian Indonesia's 2008-2022 solvency is below 2 for 2016-2022; the proxied solvency level with a DER below 2 is considered good. Based on these financial data for 2008-2015, the solvency level of PT Pegadaian Indonesia was above 2; this shows that PT Pegadaian Indonesia did not utilize the available funds efficiently. The higher the DER value, the higher the risk to PT Pegadaian Indonesia's liquidity. Based on fluctuations in financial data, PT. Pegadaian Indonesia was downloaded via the padawan.co.id website. In 2012, there was a decrease in revenue, and in 2021, there was a decrease in net profit. Because in 2012, it only excelled in gold sales when compared to 2013, when there was a decline in gold prices but was superior in terms of income and customers. In 2021 there will be a decline in the price of gold resulting in the financial performance of PT. Pegadaian Indonesia experienced a decline, but this had an impact on solvency in 2012 for PT Pegadaian Indonesia.

Activity (X3) which in this study is proxied by TATO is the ratio that shows how resources have been used optimally; then, by comparing activity ratios, it can be seen the level of efficiency of companies in the industry. Based on Table 2, it can be seen that the minimum value of the activity variable is 0.199 occurring in 2012, while the maximum value of the activity variable is 0.314 occurring in 2022. The activity variable in the period 2008 – 2022 shows a mean of 0.25294 with a standard deviation of 0.037325 which means that the data on the activity variable has a narrow distribution because the standard deviation value is smaller than the average value. This shows that the level of activity from year-to-year PT Pegadaian Indonesia is relatively the same.

PT Pegadaian Indonesia's 2008-2022 activity is above 5% (0.05), the level of activity proxied by TATO above 0.05 is said to be good. Based on fluctuations in financial data, PT. Pegadaian Indonesia was downloaded via the padawan.co.id website. In 2012, there was a decrease in revenue, and in 2021, there was a decrease in net profit. Because in 2012, it only excelled in gold sales when compared to 2013, when there was a decline in gold prices but was superior in terms of income and customers. In 2021 there will be a decline in the price of gold resulting in the financial performance of PT. Pegadaian Indonesia has decreased, but this has no impact on the activity ratio at PT Pegadaian Indonesia.

Profitability (Y) which in this study, is proxied by ROA, which is the profit ratio or profitability ratio, namely the ratio that shows the company's ability to make profits. Based on Table 2, it can be seen that the minimum value of the profitability variable is 2.830 occurring in 2020, while the maximum value of the profitability variable is 5.833 occurring in 2008. The profitability variable in the period 2008 – 2022 shows a mean of 4.90913 with a standard deviation of 0.804798 which means

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that the data on the profitability variable has a narrow distribution because the standard deviation value is smaller than the average value. This shows that the level of profitability from year to year of PT Pegadaian Indonesia is relatively the same.

Profitability for PT Pegadaian Indonesia for 2008-2022 is not all above 5%, the level of profitability proxied by TATO above 5% is said to be good, and vice versa, namely below 5% is said to be bad. Based on fluctuations in financial data, PT. Pegadaian Indonesia was downloaded via the padawan.co.id website. In 2012, there was a decrease in revenue, and in 2021, there was a decrease in net profit. Because in 2012, it only excelled in gold sales when compared to 2013, when there was a decline in gold prices but was superior in terms of income and customers. In 2021 there will be a decline in the price of gold resulting in the financial performance of PT. Pegadaian Indonesia experienced a decline, but this had an impact on the profitability ratio at PT Pegadaian Indonesia that year.

### B. Multiple Linear Regression Analysis

**Table 3. Result of Multiple Linear Regression Analysis**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.450	2,679		-.168	.870
Likuiditas	3,621	1,348	,543	2,687	,021
Solvabilitas	,437	,110	,803	3,972	,002
Aktivitas	-5,059	3,883	-.235	-1,303	,219

Source: processed data, 2023

Table 3 is the result of multiple linear regression analysis which forms the following equation.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y = -0.450 + 3.621X_1 + 0.437 X_2 - 5.059 X_3 + e$$

The results of the equation of multiple linear regression analysis can be explained as follows.

A constant value of negative 0.450 indicates that if liquidity (X1), solvency (X2), and activity (X3) are 0, then profitability (Y) is -0.450.

The regression coefficient value of the liquidity variable (X1) is positive 3.621 with a significance value of 0.021, indicating that if there is an increase in the liquidity variable (X1), then the profitability (Y) at PT Pegadaian Indonesia will increase by 3.621.

The regression coefficient value of the solvency variable (X2) is positive 0.437 with a significance value of 0.000, indicating that if there is an increase in the solvency variable (X2), then the profitability (Y) at PT Pegadaian Indonesia will increase by 0.437.

The regression coefficient value of the activity variable (X3) is negative 5.059 with a significance value of 0.219, indicating that if there is an increase in the activity variable (X2), then the profitability (Y) at PT Pegadaian Indonesia will not change.

### C. Hypothesis Testing

After the classic assumption test was carried out, which showed that the data used in this study were normally distributed and there were no symptoms of multicollinearity, heteroscedasticity, and autocorrelation, a hypothesis test was carried out with the t-test. The t-test is used to prove whether there is a significant influence between the variable liquidity ratio (X1), solvency ratio (X2), and activity ratio (X3) to profitability (Y). The results of the t-test are presented as follows.

**Table 4. T-Test Results**

Variabel	Sig	Keterangan
Likuiditas	0,021	H <sub>1</sub> diterima
Solvabilitas	0,000	H <sub>2</sub> diterima
Aktivitas	0,219	H <sub>3</sub> ditolak

Source: processed data, 2023

Table 4 is the result of the t-test for each dependent variable on the independent variable, which shows the following results.

- Liquidity variable t-test results (X1) proxied by CR to profitability (Y) proxied by ROA shows a significance value of 0.021 which is smaller than the specified significance level of 0.05, so that H<sub>0</sub> is rejected and H<sub>1</sub> is accepted, which indicates that

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- liquidity (X1) partially has a significant profitability positive effect on (Y) at PT Pegadaian Indonesia for the period 2008 – 2022.
2. Solvability variable t-test results (X2) proxied by DER on profitability (Y) proxied by ROA shows a significance value of 0.000 which is smaller than the specified significance level of 0.05 so that  $H_0$  is rejected and  $H_2$  is accepted, which indicates that solvency (X2) partially has a significant profitability positive effect on (Y) at PT Pegadaian Indonesia for the period 2008 – 2022.
  3. Activity variable t-test results (X3), which is proxied by TATO on profitability (Y) which is proxied by ROA, shows a significance value of 0.219 which is greater than the specified significance level of 0.05 so that  $H_0$  is accepted, and  $H_3$  is rejected which indicates that activity (X3) partially has no significant negative effect on profitability (Y) at PT Pegadaian Indonesia for the period 2008 – 2022.

### D. Discussion

#### 1) Effect of Liquidity on Profitability

The results of the t-test for the effect of liquidity on profitability show a significance value that is smaller than the specified significance level ( $0.021 > 0.05$ ) so that  $H_0$  is rejected and  $H_1$  is accepted, which indicates that liquidity (X1) partially has a significant positive effect on profitability (Y) at PT Pegadaian Indonesia for the period 2008 – 2022. The relationship shown by the regression coefficient value is positive, indicating that the better the liquidity, the profitability will increase. The liquidity ratio is a ratio that measures a company's ability to meet short-term obligations. The liquidity ratio is important because failure to pay short-term obligations can lead to the bankruptcy of the company. This ratio measures the company's short-term liquidity capacity by looking at the company's current assets against its current debt or company liabilities. The purpose of the analysis of the liquidity ratio is to see the company's ability to pay short-term obligations in a timely manner [8].

Liquidity proxied through CR (Current Ratio) has a positive effect on the profitability of PT Pegadaian Indonesia for the period 2008 – 2022, where during the study period, PT Pegadaian Indonesia had a liquidity value that was above the average, namely 1.46850 and had high profitability above the average namely 4.90913 occurred 4 times, namely in 2013, 2015, 2017 and 2018. The most ideal number that companies always look for in CR is 2. The company gets a CR (Current Ratio) value below 1, indicating that the company may be experiencing problems and having difficulty paying its debts. The company's financial condition is indicated to be unhealthy. Based on the research results, it can be seen that PT Pegadaian Indonesia's CR (Current Ratio) value for the period 2008 to 2022 did not reach 2 but more than 1; this indicates that PT Pegadaian Indonesia is able to pay debts that must be met immediately with current assets which are owned.

The results of this study indicate that liquidity has a significant positive effect on profitability; this indicates that a company with a high CR (Current Ratio) value indicates that the company has sufficient assets to pay off its short-term obligations so that the company's operations are not disrupted. A high level of capital will reduce the amount of debt owned by the company. Thus, the interest expense that must be paid by the company will be smaller, which causes the greater profit the company will get. The results of this study are in line with previous studies conducted by Diah Ika Murtizannah and Kirwani (2013), R. Cheppy Safei Jumaha (2017), Viviyanti Sukoco (2021).

#### 2) Effect of Solvency on Profitability

The results of the t-test for the effect of solvency on profitability show a significance value that is smaller than the specified significance level ( $0.000 > 0.05$ ) so that  $H_0$  is rejected and  $H_2$  is accepted, which indicates that solvency (X2) partially has a significant positive effect on profitability (Y) at PT Pegadaian Indonesia for the period 2008 – 2022. The relationship indicated by the positive value of the regression coefficient indicates that the better the solvency, the profitability will increase. The solvency ratio is a ratio to measure how much a company is financed by debt. The solvency ratio is used to measure the extent to which a company's assets are financed by debt. In other words, the ratio is used to measure how much debt the company must bear in order to fulfill its assets. The lower the solvency ratio level of the company's industry standard, the greater the debt financed by the company's assets, or the company is in an unhealthy condition.

Solvency proxied through DER (Debt to Equity Ratio) has a positive effect on the profitability of PT Pegadaian Indonesia for the period 2008 - 2022 where during the study period, PT Pegadaian Indonesia's solvency value was above the average, namely 3.02018 and has a high profitability above average – the average is 4.90913 occurred for 1 time, namely in 2012. Most investors actually avoid a DER (Debt to Equity Ratio) value of more than 2; this is because the company is indicated to have greater debt than the amount of equity. In fact, it is necessary to carry out further analysis because a large DER (Debt to Equity Ratio) can show the ability to use debt to generate company profits. PT Pegadaian Indonesia, for the last few years, has had a DER (Debt to Equity Ratio) below 2 which indicates the company has made efforts to reduce the use of its equity in paying debts that are due.

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The results of this study indicate that solvency has a significant positive effect on profitability; this indicates that the greater the solvency, the greater the trust from outsiders because it allows the company's performance to increase. With large capital, the greater the opportunity to achieve large profits. The increasing corporate debt used for operational financing will generate profits so that the company is still able to fulfill its obligations. The results of this study are in line with previous studies conducted by Budiyanto and Sefty Setyafani Sansalia (2015), R. Cheppy Safei Jumaha (2017) and Viviyanti Sukoco (2021).

### 3) *Effect of Activity on Profitability*

The results of the t-test for the effect of activity on profitability show a significance value greater than the specified significance level ( $0.219 > 0.05$ ) so that  $H_0$  is accepted and  $H_3$  is rejected, which indicates that activity (X3) partially does not have a significant negative effect on profitability (Y) at PT Pegadaian Indonesia for the period 2008 – 2022. The relationship shown by the regression coefficient value is negative, indicating that an increase or decrease in the value of the activity ratio will not affect the company's profitability. The activity ratio is the ratio that describes the activities carried out by the company in carrying out its operations both in sales, purchases, and other activities. The liquidity ratio can be said to be the ratio used to assess how efficiently a company can utilize and manage the company's resources in carrying out daily activities such as sales, collection of accounts receivable, inventory management, working capital management, and management of all assets. Low activity at a certain level of sales will result in greater excess funds being embedded in these assets (Rina et al., 2019).

Activities that are proxied through TATO do not negatively affect the profitability of PT Pegadaian Indonesia for the period 2008 – 2022, where during the study period, PT Pegadaian Indonesia has an activity value that is above the average of 0.25294 and has a high profitability above the average of 4,90913 does not occur in any year. This supports the research that no matter how big the value of TATO will not increase or decrease the size of the company's profitability. The expected TATO value for BUMN is based on the BUMN standard No. Kep 100/MBU/2002 is 120. Based on the research results, it can be seen that PT Pegadaian Indonesia has not been able to achieve these criteria, which indicates that the company is less effective in managing its assets, so it has an impact on the company's income.

The results of this study indicate that activity does not have a significant negative effect on profitability; this indicates that the greater the value of the activity ratio, the greater the profitability obtained by the company. PT Pegadaian Indonesia is likely to be more concerned with paying off creditors than using cash to pay returns to shareholders so that whatever amount of income is received by utilizing the assets it owns, it does not affect the profitability obtained. The results of this study are in line with previous research conducted by I Dewa Gd Gina Sanjaya, I Md Surya Negara Sudirman, M. Rusmala Dewi (2015) and Firman Ali, Hamida Hasan, Mulyana Machmud (2022) [11,7].

## IV. CONCLUSION

Based on this study's results, the conclusions can be drawn include the following.

1. The liquidity ratio has a significant positive effect on profitability; this indicates that a company with a high CR value indicates that the company has sufficient assets to pay off its short-term obligations so that the company's operational activities are not disrupted. A high level of capital will reduce the amount of debt the company owns. Thus, the interest expense that the company must pay will be more minor, which causes the more significant profit the company will get.
2. The solvency ratio has a significant positive effect on profitability; this indicates that the greater the solvency, the greater the trust from outsiders because it enables an increase in company performance. With large capital, the greater the opportunity to achieve large profits. The increasing corporate debt used for operational financing will generate profits so that the company is still able to fulfill its obligations.
3. The activity ratio does not have a significant negative effect on profitability; this indicates that the greater the activity ratio value, the greater the profitability obtained by the company. PT Pegadaian Indonesia is likely to be more concerned with paying off creditors than using cash to pay returns to shareholders so that whatever amount of income is received by utilizing the assets it owns, it does not affect the profitability obtained.

## REFERENCES

- 1) Ariani, Mintarti, Nabila Claudia and Sugeng Hariadi. 2019. Analysis of Factors Influencing the Profitability of PT Pegadaian (Persero) for the 2001-2015 Period. *Calyptra: University of Surabaya Student Scientific Journal* Vol. 7 No. 2.
- 2) Budiyanto, Sefty Setyafani Sansalia. 2015. The Effect of Liquidity Ratios and Solvency Ratios on Profitability in Banking Companies. *Journal of Management Science and Research*, Volume 4, Number 6.
- 3) Darmawan. 2020. *Basics of Understanding Financial Statement Ratios*. Yogyakarta: UNY Press.
- 4) Dawam, Aulia. 2018. Analysis of Financial Ratios to Assess Financial Performance Achievements at PT. Kimia Farma Tbk Period 2012-2016. *Journal of Management*

## Analysis of Financial Ratio to Profitability in PT. Pegadaian Indonesia 2008-2022

- 5) Hasan A and Gusnadi. 2018. Prospects for Implementation of Accounting Standards. Published by Sadaripres, Bandung.
- 6) Cashmere. 2016. Analysis of Financial Statements. Jakarta: Raja Grafindo Persada.
- 7) Machmud, Mulyana, Firman Ali and Hamida Hasan. 2022. The Effect of Liquidity, Solvency, and Activity Ratios on Profitability in PDAMs. Journal of Management, Volume 3, Number 1.
- 8) Nuriasari, Selvia. 2018. Liquidity Ratio Analysis in Measuring Financial Performance of PT. Mustika Ratu, Tbk (2010-2016). Journal of Business and Investment Research, Vol. 4, No. 2.
- 9) Putra, Arif Rahman and Jhon Rinaldo. 2020. Analysis of the Effect of Liquidity and Solvency Ratios on Profitability at PT Garuda Indonesia. Journal of Matua, Vol. 2, No. 4, Pages: 332-338.
- 10) Restiana, Ria. 2021. Community Improvement Analysis of Gold Pawning and Risk Management of Gold Pawning Financing During the Covid-19 Pandemic (Case Study at PT. Pegadaian Syariah Unit Awirarangan Kuningan).
- 11) Sanjaya, I Dewa Gd, I Md. Surya and M. Rusmala Dewi. 2015. Effect of Liquidity and Activity on Profitability at PT PLN Persero. Unud Management E-Journal, Vol. 4, No. 8, Pages: 2350-2359.
- 12) Susilo, Sigit Triandaru and Totok Budisusanto. 2000. Banks and Other Financial Institutions, Jakarta. Salemba Four.



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## The Relationship between Infrastructure, Learning Media, and Learning Motivation, and Physical Education Learning Outcomes at Junior High Schools in Purbalingga Regency



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**ABSTRACT:** This study aims to determine the relationship between infrastructure, learning media, and learning motivation, and physical education learning outcomes at junior high schools in Purbalingga Regency. This descriptive quantitative correlational research was conducted at several junior high schools in Purbalingga Regency in January 2023. The sampling technique was the total sampling used to collect 55 schools in Purbalingga Regency. The data were collected by spreading questionnaires to Physical Education teachers, and the process was started by finding the data on Physical Education teachers at junior high schools in Purbalingga. Then, the questionnaires were distributed, and learning outcomes were collected. The results of this study indicate that: (1) There is a significant relationship between infrastructure and learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (2) There is a significant relationship between learning media and the learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (3) There is a significant relationship between learning motivation and learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (4) There is a significant relationship between learning media infrastructure and learning motivation on the learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ .

**KEYWORDS:** infrastructure, learning media, learning motivation, learning outcomes

### INTRODUCTION

Through the level of education in schools, students will be equipped with essential abilities and skills to be able to anticipate problems that exist in everyday life, including sports skills and other life skills (Harsuki, 2012: 97). Based on Government Regulation Number 32 of 2013 concerning National Education Standards, Article 1 Paragraph 9 explains that facilities and infrastructure standards are national education standards related to minimum criteria for learning spaces, sports venues, places of worship, libraries, laboratories, work workshops, playgrounds, recreational and creative places, as well as other learning resources needed to support the learning process including the use of information and communication technology. Furthermore, in Chapter VII Article 42 of Government Regulation No. 32 of 2013 concerning National Education standards, it is also explicitly stated that each educational unit must have facilities that include furniture, educational equipment, educational media, books and other learning resources, consumables, and other equipment needed to support a regular and continuous learning process.

According to Suherman (2004: 23), sports physical education and health is a learning process through physical activities designed to improve physical fitness, develop motor skills, knowledge and behaviours of healthy and active living, sportsmanship, and emotional intelligence. The learning environment is carefully regulated to improve the growth and development of each student's entire realm: physical, psychomotor, cognitive, and affective.

Infrastructure or equipment is everything that is needed in Physical Education. It can be moved (can be semi-permanent), but it is heavy and difficult to be moved. The infrastructure includes mattresses, jump crates, horses, single bars, parallel bars, tiered bars, table tennis tables, and trampolines. This equipment should not be moved so that it is not easily damaged unless the place is limited so that it must always be unloaded (Suryobroto, 2014: 4). According to Herman & Riady (2018: 5), physical education facilities are everything needed to support learning but the equipment is heavy even it can be moved. It is clearly stated in the Regulation of the Minister of National Education of the Republic of Indonesia Number 24 of 2007 concerning the standards of junior high school/MTS facilities and infrastructure. In line with the above statement, stated in the Law of the National School of

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Education Number 20 of 2003 Chapter VII Article 42 Paragraphs 1 and 2, it is stated that each educational unit must have the necessary facilities and infrastructure to support the learning process and be regular and sustainable. Turner, Calvert, & Chaloupka (2018: 8) argue that to improve and procure existing facilities in schools, it is necessary to have a good partner between the components in the school, both between the principal, teachers and staff of the facilities and infrastructure so that the facilities in the junior high school will be fulfilled to the maximum.

Purbalingga is one of the regencies in Central Java. Purbalingga Regency has approximately 767 Junior High Schools under the auspices of the Education and Culture Office of Purbalingga Regency. This data was obtained from the researcher's observation during his participation in the Subject Teacher Deliberation or MGMP (in Indonesian language, Musyawarah Guru Mata Pelajaran), both in public and private schools.

Based on the facts in the field and interviews conducted with several Physical Education teachers in Purbalingga Regency, one of the problems often faced by Physical Education teachers is the need for more facilities and infrastructure in Physical Education learning. The school still needs to be optimized in managing the facilities and infrastructure. It is also reinforced by statements from some Physical Education teachers when conducting subject-teacher deliberations (MGMP) at junior high schools. Many teachers also complain about lacking facilities and infrastructure that do not meet existing standards. This condition is due to the limited availability and quality of Physical Education facilities and infrastructure. For example, some sports equipment exists but still needs to be completed. Furthermore, there needs to be optimal management, maintenance, and monthly checking of the condition and number of Physical Education facilities. So that the facilities and infrastructure in the school are lost, quickly damaged and cannot be used. In this case, the school can maximize knowledge and understanding of the management of Physical Education facilities and infrastructure owned by the school.

Physical education facilities and infrastructure in schools are closely related to achieving learning goals. Physical education learning objectives and achieving achievements are of course inseparable from the availability of adequate physical education facilities and infrastructure, in accordance with sports standards, and in accordance with school needs, as well as supported by the management of physical education facilities and infrastructure. The existence of good management of sports facilities and infrastructure will contribute to Physical Education learning objectives and achievement of sports achievements, as well as the condition of Physical Education facilities and infrastructure will always be organized, maintained and always in a ready-to-use condition. This statement is emphasized by Matin and Fuad (2018: 1) who state that educational facilities and infrastructure are one of the resources that support the learning process at school. The success of educational programs at school is very much based on the condition of the educational facilities and infrastructure owned by the school. For this reason, there is a need for knowledge about the management of Physical Education facilities and infrastructure, learning media, as well as learning motivation starting from planning, procurement processes, inventory, use, maintenance and disposal of goods.

### METHOD

This research is correlational quantitative; the data produced are in the form of percentage data in the form of numbers. This research was conducted at a junior high school in Purbalingga Regency in January 2023. Population is the overall object of research, and the sample is a part or representative of the population studied (Arikunto, 2006, p. 130). The population in this study were all junior high schools in Purbalingga Regency, totalling 77 schools. The sample is included in the part of the population that has specific characteristics and characteristics. The sampling technique used in this study, and it used total sampling consisting of 55 junior high schools in Purbalingga Regency. Research instruments are tools to facilitate data processing that researchers use to collect research data whose purpose is to facilitate the work so that the results of the data studied are more complete, systematic, and careful (Arikunto, 2010, p. 203).

### DISCUSSION

The variable on infrastructure has 40 valid statement questions with a total of 55 school respondents. From the data obtained, facilities and infrastructure obtained results with a maximum value of 74, minimum value of 44, mode of 63, median of 63, mean of 61.84, and standard deviation of 7.911.

**Table 1**

**Statistics**

Infrastruture

N	Valid	55
	Missing	0

**The Relationship between Infrastructure, Learning Media, and Learning Motivation, and Physical Education Learning Outcomes at Junior High Schools in Purbalingga Regency**

Mean	61.84
Median	63.00
Mode	63 <sup>a</sup>
Std. Deviation	7.911
Range	30
Minimum	44
Maximum	74

The number of interval classes obtained was 6 using the formula  $1 + 3.3 \log n$ . The data range in this variable is  $74 - 44 = 30$ ; with the knowledge of the range value, it is found that the class length for the interval of each group is  $30 : 6 = 5$ ; the following is the frequency distribution table.

The variable on learning media has 30 valid statement questions with 55 school respondents. The learning media were obtained from the data obtained with a maximum value of 53, minimum value of 30, mode of 33; median of 40 ; mean 40.18 ; and standard deviation of 6.295.

**Table 2. Statistics Descriptive Of Learning Media**

Statistics		
Learning Media		
N	Valid	55
	Missing	0
Mean		40.18
Median		40.00
Mode		33
Std. Deviation		6.295
Range		23
Minimum		30
Maximum		53

The number of interval classes obtained was 6 using the formula  $1 + 3.3 \log n$ . The data range in this variable is  $74 - 44 = 30$ . With the knowledge of the range value, it is found that the class length for the interval of each group is  $30 : 6 = 5$ . The following is the frequency distribution table.

The variable on learning motivation has 30 valid statement questions with 55 school respondents. From the data obtained, learning motivation obtained results with a maximum value of 100; minimum value of 54 ; mode 87 ; median 87 ; mean 81.42; and standard deviation of 12.047.

**Tabel 3. Statistics descriptive of Learning Motivation**

Statistics		
Learning Motivation		
N	Valid	55
	Missing	0
Mean		81.42
Median		87.00
Mode		87
Std. Deviation		12.047
Range		46
Minimum		54
Maximum		100

The number of interval classes obtained was a total of 6 classes using the formula  $1 + 3.3 \log n$ . For the data range in this variable is  $74 - 44 = 30$ , with the knowledge of the range value, it is found that the class length for the interval of each group is  $30 : 6 = 5$ , the following is the frequency distribution table.



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The variable on learning motivation has 30 valid statement questions with 55 school respondents. From the data obtained, learning motivation obtained results with a maximum value of 89 ; minimum value of 81 ; mode 85 ; median 84 ; mean 84.38; and standard deviation of 1.408.

**Table 4. Statistics descriptive of Learning Outcomes**

Statistics		
Learning Outcomes		
N	Valid	55
	Missing	0
Mean		84.38
Median		84.00
Mode		85
Std. Deviation		1.408
Range		8
Minimum		81
Maximum		89

The number of interval classes obtained was a total of 6 classes using the formula  $1 + 3.3 \log n$ . For the data range in this variable is  $74 - 44 = 30$ , with the knowledge of the range value, it is found that the class length for the interval of each group is  $30 : 6 = 5$ , the following is the frequency distribution table.

**Table 5  
Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	77.622	1.202		64.583	.000
	Infrastructure	.109	.019	.614	5.669	.000

Based on the SPSS output results regarding the correlation coefficient, the correlation coefficient value is 0.614 and this coefficient is a positive sign. It will show that physical education learning outcomes increase if the infrastructure increases. It can be seen that the relationship of facilities and infrastructure to physical education learning outcomes is significant. It is evidenced by  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). It can be said that  $H_0$  is rejected and  $H_a$  is accepted, so it can be concluded that there is a positive and significant relationship between infrastructure to physical education learning outcomes at junior high schools in Purbalingga Regency.

A simple regression analysis will be used using the SPSS V.25.0 for Windows application to examine the significant relationship between learning media and physical education learning outcomes. Before determining the value of the relationship between learning media and physical education learning outcomes, it is necessary to analyze the relationship between the two variables. Meanwhile, the t-test results based on the results of the SPSS can be seen in the following table.

**Table 6.  
Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	78.014	.881		88.566	.000
	Learning Media	.158	.022	.709	7.316	.000

Based on the SPSS output results regarding the correlation coefficient, the correlation coefficient value is 0.614, and this coefficient is a positive sign. It will show that if the learning media increases, the learning outcomes of physical education also increase. It can be seen that the relationship of facilities and infrastructure to physical education learning outcomes is significant.

## **The Relationship between Infrastructure, Learning Media, and Learning Motivation, and Physical Education Learning Outcomes at Junior High Schools in Purbalingga Regency**

It is evidenced by  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). It can be said that  $H_0$  is rejected and  $H_a$  is accepted, so it can be concluded that there is a positive and significant relationship between infrastructure to physical education learning outcomes at junior high schools in Purbalingga Regency.

This research aims at exploring the relationship between infrastructure, learning media, and learning motivation and Physical Education learning outcomes at junior high schools in Purbalingga Regency. Research results are explained in detail in following section:

### **1. The relationship between Infrastructure (X1) and Physical Education Learning Outcomes (Y)**

From the results of the stimulant test carried out with a significance value of  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). It shows that infrastructure significantly correlates with physical education learning outcomes at junior high schools in Purbalingga Regency.

Based on the results of regression testing of the relationship between infrastructure facilities, the R square value was 0.366. It means that the variable infrastructure is related to physical education learning outcomes by 36.6% and by 63.4% determined by causes other than simple regression models or partial tests that were not studied in this study. So it can be said that  $H_0$  is rejected and  $H_a$  is accepted because the significance value is  $< 0.05$ .

According to Bachtriar (2015: 7), for the smooth learning of Physical Education, the school must be optimal in managing the facilities and infrastructure of Physical Education so that in the learning process, children will feel happy so that they can improve their skills and improve student body fitness. In line with existing theories, good infrastructure can affect learning processes and produce good learning outcomes. The more complete the existing infrastructure facilities, the higher the learning outcomes obtained.

### **2. The relationship between Learning Media (X2) and Physical Education Learning Outcomes (Y)**

From the results of the stimulant test carried out with a significance value of  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). It shows that infrastructure significantly correlates with physical education learning outcomes at junior high schools in Purbalingga Regency.

Based on the results of regression testing of the relationship between infrastructure facilities, the R square value was 0.366. It means that the variable infrastructure is related to physical education learning outcomes by 36.6% and by 63.4% determined by causes other than simple regression models or partial tests that were not studied in this study. So, it can be said that  $H_0$  is rejected, and  $H_a$  is accepted because the significance value is  $< 0.05$ .

Media is everything that can be used to channel messages from sender to receiver so that it can stimulate students' thoughts, feelings, attention, and interests in such a way that the learning process occurs (Sadiman, 2006: 6). It means that media can be used as a tool to shape the minds of students so that it can be applied in learning. In line with existing theories, it can show that good and interesting learning media can affect the learning process and produce good learning outcomes. It can be seen that the more interesting the learning media used, the easier it is to stimulate the minds of students, the higher the learning outcomes obtained.

### **3. The relationship between Learning Motivation (X3) and Physical Education Learning Outcomes (Y)**

From the results of the stimulant test carried out with a significance value of  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). This shows that infrastructure has a significant relationship with physical education learning outcomes at junior high schools in Purbalingga Regency.

Based on the results of regression testing of the relationship between infrastructure facilities, the R square value was 0.366. This means that the variable infrastructure is related to physical education learning outcomes by 36.6% and by 63.4% determined by causes other than simple regression models or partial tests that were not studied in this study. So it can be said that  $H_0$  is rejected and  $H_a$  is accepted because the significance value is  $< 0.05$ . Learning Motivation is an encouragement in students that can ensure the continuity of learning activities so that there is a change in their knowledge, skills, and attitudes and behaviors and the desired goals are achieved. The existence of Learning Motivation in students will make students have passion, feel happy and eager to learn. In line with existing theories, it can show that high learning motivation can affect the learning process and produce good learning outcomes.

The Relationship between Infrastructure (X1) Learning Media (X2) and Learning Motivation (X3) as a unit and Physical Education Learning Outcomes (Y).

From the results of the stimulant test carried out with a significance value of  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ). It shows that infrastructure has a significant relationship with physical education learning outcomes at junior high schools in Purbalingga Regency.

Based on the results of regression testing of the relationship between infrastructure facilities, the R square value was 0.366. This means that the variables of infrastructure, learning media and learning motivation together are related to physical education learning outcomes by 65.4% and the ratio of 35.5% is determined by other causes that were not studied in this study. So it can be said that  $H_0$  is rejected and  $H_a$  is accepted because the f count  $>$  f table value, and the significance value is  $< 0.05$ .

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### CONCLUSION

The results of this study indicate that : (1) There is a significant relationship between infrastructure and learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (2) There is a significant relationship between learning media on the learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (3) There is a significant relationship between learning motivation and learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ . (4) There is a significant relationship between infrastructure, learning media, and learning motivation as a unit and learning outcomes of junior high school students in Purbalingga Regency, with a significance value of  $0.000 < 0.05$ .

### REFERENCES

- 1) Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Penerbit Rineka Cipta.
- 2) Arikunto, Suharsimi. (2016). *Prosedur Penelitian: Suatu pendekatan Praktik*. Jakarta: Rineka Cipta.
- 3) Bachtriar, M. Nasir Yusuf. (2015). Pelaksanaan pendidikan jasmani di sekolah dasar favorit di kota Banda Aceh tahun 2009. *Jurnal Pesona Dasar, Pendidikan Dasar Dan Humaniora*, 3(3), 15–21.
- 4) Harsuki. (2012). *Pengantar Manajemen Olahraga*. Jakarta: Rajawali Pers.
- 5) Herman, H., & Riady, A. (2018). Survey sarana dan prasarana pendidikan jasmani di smp/mts swasta kabupaten pangkep. *SPORTIVE: Journal Of Physical Education, Sport and Recreation*, 1(2), 27-35.
- 6) Matin, & Fuad, N. (2018). *Manajemen Sarana dan Prasarana Pendidikan: Konsep dan Aplikasinya*. PT RajaGrafindo Persada.
- 7) Nila, S., Suryobroto, B., & Widayati, K. A. (2014). Dietary variation of long tailed macaques (*Macaca fascicularis*) in Telaga Warna, Bogor, West Java. *HAYATI Journal of Biosciences*, 21(1), 8-14.
- 8) Sadiman, A.S dkk. (2014). *Media Pendidikan : Pengertian, pengembangan dan pemanfaatannya*. Jakarta : Rajawali Pers
- 9) Suherman. W. S. (2004). *Kurikulum Berbasis Kompetensi Pendidikan Jasmani Teori dan Praktik Pengembangan*. Yogyakarta: FIK UNY.
- 10) Turner, L., Calvert, H. G., & Chaloupka, F. J. (2018). Barriers to shared use of indoor and outdoor facilities at US elementary schools. *Journal of school health*, 88(5), 379-387.



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## The Influence of the Level of Guarantee of Operating Expenses on the Application of Accounting Software in Public Non-Business Unit



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**ABSTRACT:** Public non-business units are established by the state to perform public services and distribute those services to society. Through the document research method, the article has generalized the role, function, and accounting form of public non-business units and the importance of accounting. With this method, we can also evaluate the limitations in accounting and the reasons why many public non-business units do not see the need to apply accounting software in accounting. Three reasons were pointed out: unit leaders did not pay attention to accounting work, lack of funding for implementation and incorrectly identified the reasons for errors in accounting planning. The investigation method also helped us identify how accounting software applications are affected by the level of Guarantee of operating expenses. Analysis results have shown that financially autonomous units have a higher tendency to apply accounting software than units without financial revenue. The research team also proposed a number of solutions such as increasing the understanding and awareness of business unit leaders about the importance of accounting work and accounting software. Implement budget estimates for information technology construction at the unit, properly assessing the key points of existence.

**KEYWORDS:** Accounting software, Level of Guarantee of operating expenses, Public non-business unit, Vietnam

### 1. INTRODUCTION

Operating in areas such as education, healthcare, culture, information, science and technology, economics Vietnam's public non-business unit has contributed significantly to the process of economic reform. - Society. These units operate based on funding from the State or from other funding sources such as non-business revenue, fees, charges, business revenue, or non-refundable aid. To manage and be proactive in their regular expenditures, public non-business units must annually prepare estimates for each expenditure item and are responsible for complying with the provisions of the State Budget Law and standards norms and regulations on public accounting regimes issued by the State. In addition to meeting the requirements of economic and financial management and strengthening the management and control of state budget expenditures, public non-business units must manage public assets and improve the quality of accounting. Accounting work in public non-business units must ensure consistency between accounting and management requirements of the State and the unit. Accordingly, accounting needs to comply with the content and methods of accounting with the current accounting regimes of the State and be consistent with the characteristics of the unit. Accounting work in public non-business units has the role of controlling funding sources, the situation of using and finalizing funds, managing and using public assets and materials, and complying with revenue and expenditure estimates and implementing State standards and norms. At the same time, public accounting with the function of information on all economic activities arising in the process of implementing the state budget is used by the State as a tool for state budget management, making an effective contribution using capital economically and efficiently. Currently, the accounting organization at the public non-business unit, although gradually improving, still has many inadequacies and is still passive when applying information technology, mainly using the form of accounting manual, has not yet built a team of accounting staff to meet the requirements of technology transformation. Therefore, the information provided by accounting is mainly of an administrative reporting nature, with little practical effect in analyzing the unit's financial situation, the receipt, and the use of State funds. With the requirement to complete the tasks assigned by the state and effectively use funding sources, the organization of accounting work and the focus on accounting work needs to be innovated. Applying technology in accounting work, converting to machine

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accounting to minimize errors, accurately account, and effectively manage assets is the solution for public non-business units. This research aims to clarify the theoretical basis of public non-business units, accounting work and the benefits of machine accounting in accounting. Learn about the impact of the ability to ensure the operating costs of units and the application of machine accounting.

### **2. THEORETICAL BASIS**

#### **2.1. Public Non-Business Unit**

Public non-business units are specifically defined in terms of functions and tasks in many documents guiding the implementation of the Laws and documents of Vietnam. In the Decree regulating the autonomy mechanism of public non-business units, "public non-business units are established by competent State agencies in accordance with the provisions of law, have legal status, and provide public services, serving state management" (Decree 16/2015/ND-CP). Author Loi (2008) believes that public non-business units were established by the Vietnamese state. These units perform administrative management tasks, ensuring security, national defense, and socio-economic development. Funding sources for these units are funded by the State and operate on the principle of no direct compensation (pp.29-30). According to the detailed regulations of a number of articles of the Accounting Law, public non-business units have the characteristic of operating not for profit purposes, serving the community (Decree No. 174/2016/ND-CP). Thus, we can understand that Vietnamese public non-business units are responsible for providing public goods and services to society and other goods and services in the fields of education, health, culture, and communication news, sports, agriculture - forestry and fishery, economics. These units are funded by the Vietnamese government and operate according to the tasks assigned by the state.

#### **2.2. Classification of public non-business unit according to the degree of self-satisfaction of operating expenses from public service revenues**

Public non-business units are classified according to three criteria: the level of self-sufficiency in operating expenses from public service revenue, the field of operation and according to Budget management decentralization. This study aims to classify according to the level of financial autonomy, the classification is as follows:

The public non-business unit ensures their own funding for regular operations. These are units with a stable source of income from non-business activities, so all regular operating costs are guaranteed, the state budget does not have to fund the unit's regular operations.

The public non-business unit must ensure its own regular operating budget. These are units that have revenue from non-business activities but do not fully cover their regular operating costs. The state budget must partially fund the unit's regular operations.

Public non-business units have all operating costs covered by the State. These are public non-business units with low or no revenue sources and regular operating funds according to their functions and tasks, with the state budget ensuring all operating costs.

#### **2.3. Form of accounting at the public non-business unit**

The form of accounting at the public non-business unit is content in the organization of the accounting book system. According to regulations, "Accounting books are used to record, systematize and store all economic and financial transactions that have arisen related to the accounting unit" (Accounting Law No. 88/2015/QH13). According to author Loi (2008), accounting books include many types of books with different structures but are combined together in a certain order to classify and synthesize necessary information to serve the preparation of financial statements. Accounting reports (p.244). Accounting forms at public non-business units include 4 types.

General Journal accounting form: This is an accounting form applied in public non-business units with simple revenues, a small number of accountants and a maximum of 20 accounting accounts both internally and externally. board. The characteristic of this form is that all arising economic and financial transactions are recorded in the General Journal according to the time order of occurrence and the content of that economic transaction. Data on the Journal is also taken to record in the Ledger according to each economic transaction that occurs. Accounting form: The General Journal includes types of accounting books such as: General Journal, ledger and detailed accounting books and cards, in which the General Journal and ledger are general accounting books used to record economic and financial activities in chronological order and according to the content of the economic and financial operations that arise. Detailed accounting books are used to specifically record economic and financial activities according to the unit's specific detailed management requirements for that financial activity.

Accounting form Diary - ledger: The form "Journal - ledger" is characterized by the combination of arising economic and financial transactions recorded in chronological order and according to economic content (according to accounting accounts) on the same general accounting book, the Journal - Ledger. The basis for recording in the ledger journal is accounting documents or a summary

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of accounting documents of the same type. The accounting book system used in the form of Diary - Ledger includes: Journal - Ledger and detailed accounting books and cards; Detailed accounting books are accounting books used to record economic and financial activities according to the unit's specific detailed management requirements for those economic and financial activities. Form of accounting Documentation - Bookkeeping: This form of accounting is often applied in public non-business units with large-scale revenue, complex operational content and organized production and business activities. The Voucher - Bookkeeping accounting form has some basic characteristics. Record in chronological order the economic and financial transactions arising in the register of book-entry documents. Record according to the economic content of economic and financial transactions arising in the ledger. Book entry documents are prepared by accountants on the basis of each accounting document or a summary of accounting documents of the same type, with the same economic content. Book-entry vouchers are continuously attached with data for each month or year (according to the sequential number in the book-entry voucher registration book) and have attached accounting documents, which must be approved by the chief accountant before being recorded in the accounting books. The accounting book system used in this form of accounting includes: Book-entry vouchers, book-entry voucher registration books, ledgers, detailed accounting books and cards. The register of book-entry documents is a general accounting book used to record economic and financial activities summarized in book-entry documents in chronological order.

Computerized accounting form: The basic characteristic of computerized accounting is that accounting work is done according to a computerized accounting software program. There are many software programs that vary in technical features and applicable eligibility criteria. Accounting software is designed according to the principles of one of two forms of accounting. Although accounting software does not fully display the accounting bookkeeping process, it must ensure that it can fully print accounting books and financial reports according to regulations.

### **2.4. Accounting Software and benefits in accounting activities**

Each form of accounting book organization has its own characteristics, advantages and disadvantages depending on the type of unit. Depending on the specific characteristics of each public service unit in terms of scale, nature of operations, the field of operation, volume of economic operations arising, requirements for providing information to management, professional qualifications. With the services and capabilities of the accounting staff and the conditions and physical facilities for accounting work, the unit chooses one of the appropriate forms of organizing accounting books. However, good accounting software will help public non-business units promptly update the latest regulations and circulars from the State, thereby helping the units avoid making legal mistakes. Accounting software easily connects with other software systems such as electronic tax systems and electronic invoices to create a closely linked financial accounting ecosystem and help the process Operations are performed faster and more accurately. In addition, the interface of the accounting software is continuously improved and easy to use is quite important criterion. The unit uses software with a friendly interface for accounting staff to make operations easier, helping to reduce implementation time and optimize work efficiency.

## **3. RESEARCH METHODS**

The research uses data collection and investigation methods to serve the research objectives. The data collection method is a method based on searching and synthesizing information, knowledge, and theory from available sources, thereby building theories, proving and synthesizing to form argument points. We searched for documents on Accounting Laws, Decrees, books and research reports related to public non-business units. From these documents, we use data collection methods to synthesize information and clarify the concepts, functions, and roles of public non-business units. Basic overview of accounting work organization and accounting, accounting forms at the public non-business unit. To determine the influence of the level of self-guarantee of operating expenses on the application of accounting software, we use a survey method. The investigation method is a scientific research method used to learn specifically about the characteristics of scientific research objects. Through investigation, find specific signs of objects to draw out their nature and rules. The object of investigation is the type of public service unit and the application of accounting software in that unit. The analysis used is a One-way - Anova analysis. This analysis method will prove to us whether the average values of 3 groups of business units are different in the application of accounting software. Analysis was performed on SPSS statistical analysis software.

## **4. RESEARCH RESULTS**

### **4.1. Analyze investigation results**

The research results are based on the analysis results between a quantitative variable "accounting software application" and a qualitative variable "level of self-guarantee of operating expenses". Quantitative variables were investigated for 186 accountants

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at public non-business units of different types. These observed variables are respectively "Accounting software meets management requirements and provides accounting information", "Unit leaders make necessary and appropriate changes to improve operational performance." activities in accounting" and "Development plan and vision of public non-business unit suitable for applying accounting software". These variables are evaluated from point 1 to point 5. The higher the selection score, the higher the ability to apply accounting software. One-way - Anova analysis results are as follows:

**Table 1. Descriptions**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Self-funding for regular activities	74	4,3468	,36364	,04227	4,2626	4,4311	3,33	5,00
Self-guarantee part of regular operating expenses	64	4,0000	,25888	,03236	3,9353	4,0647	3,67	5,00
The state guarantees all operating costs	48	2,7431	,57628	,08318	2,5757	2,9104	1,00	3,33
Total	186	3,8136	,76321	,05596	3,7032	3,9240	1,00	5,00

Source: Author's analysis of survey data

From the Descriptives data, we see that out of the total 186 public non-business units investigated, there are 74 public non-business units in the Self-funding for regular activities type, accounting for 39.7%. The Self-guaranteed part of the regular operating expenses type has 64 units, accounting for 34.4%. The type of public service unit the state guarantees all operating costs has 48 units, a rate of 25.8%. The ratio of types of public non-business units according to the survey is consistent with reality in this area. Currently, public non-business units are gradually moving towards financial autonomy and the number of units relying entirely on state budget sources is lower than the remaining figure. The average descriptive results of quantitative variable data show that the choice of applying accounting software at Self-funding for regular activities and Self-guarantee part of regular operating expenses is quite high from 3.33 to 5. In contrast, the state guarantees all operating costs are low with an average of 1 to 3.33.

**Table 2. Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
17.332	2	183	0.000

Source: Author's analysis of survey data

The next result we need to pay attention to is the Homogeneity of variance test. This table gives the results of testing the difference in variance of groups of values using the Levene test. There are two cases. In case 1, if the sig result is greater than or equal to 0.05, it shows that the variance between different types of public non-business units is no different. At this point, we evaluate the next results in the Anova table. If the sig in the Anova table is greater than or equal to 0.05, there is no statistically significant difference between types of public non-business units in the application of accounting software. On the contrary, if the sig is less than 0.05, it means there is a statistically significant difference between types of service units. In case 1, if Levene's sig is less than 0.05, the hypothesis of homogeneity between groups has been violated. This means that the variance between different types of public non-business units is not equal. We cannot use the results in the Anova table, now we use the results in the Robust Tests of Equality of Means table. In the table, if the sig is less than 0.05, we conclude that there is a statistically significant difference in the application of accounting software in different types of public non-business units. On the contrary, if the sig of Robust Tests is greater than or equal to 0.05, we conclude that there is no statistically significant difference in the application of accounting software in other types of public non-business units. Looking at the Levene Statistic results in this study we see Sig = 0.000 < 0.05, we need to ignore the results in the Anova table (table 3) and consider the results in Table 4

**Table 3. ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	78,277	2	39,138	242,921	,000
Within Groups	29,484	183	,161		
Total	107,761	185			

Source: Author's analysis of survey data

## The Influence of the Level of Guarantee of Operating Expenses on the Application of Accounting Software in Public Non-Business Unit

Results Sig. of Welch test = 0.000 in Table 4, less than 0.05. We can conclude that there is a statistically significant difference in the application of accounting software in different types of public non-business units. This result also once again confirms that public non-business units in the Self-funding for regular activities type aim to apply accounting software more, and the Self-guaranteed part of the regular operating expenses type has the ability to apply accounting software. The application is almost as high as type 1 and the state guarantees all operating costs of public non-business units, showing that the application is not highly appreciated.

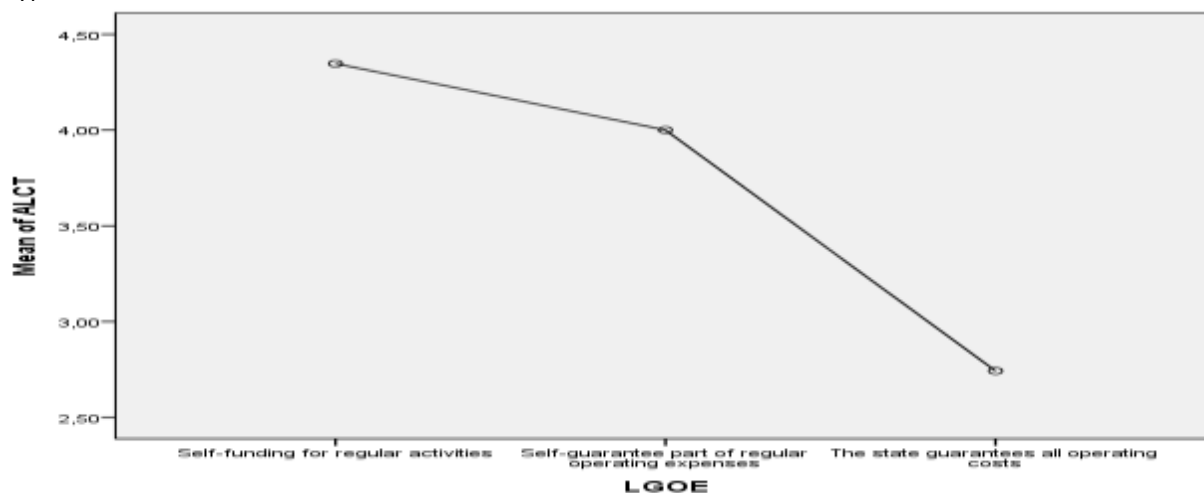
**Table 4. Robust Tests of Equality of Means**

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	146.813	2	100.227	0.000

a. Asymptotically F distributed.

Source: Author's analysis of survey data

Figure 1 presented in the article accurately describes the ability to apply accounting software in public non-business units of different types.



**Figure 1. Ability to apply accounting software**

Source: Author's analysis of survey data

### 4.2. Reason

Applying information technology is a requirement for Vietnam's public services to develop in quality and become more effective. However, the investigation results show that many public non-business units have not applied accounting software in accounting at the unit. Researching and discussing with accountants participating in the survey, we identified the following reasons leading to difficulties in applying accounting software. Firstly, many leaders of public non-business units do not pay attention to accounting work at the unit. Awareness and understanding of accounting software and its benefits in accounting are not high. Second, in terms of funding for technology application and use of accounting software. To deploy the software, in addition to the cost of using accounting software, public non-business units need to invest in modern machinery systems along with a group of personnel with professional qualifications and computer skills. Good. Meanwhile, the accounting department at many public non-business units is very small, has few personnel, lacks computer skills and funding for building technological equipment is not guaranteed. Third, many units do not have business revenue activities, so they think they do not need the support of accounting software. This is a wrong statement because errors in the accounting process mainly occur in asset management activities.

## 5. CONCLUSION

Research results have shown that accounting activities at public non-business units still have many limitations. Accounting reports are still heavily formalized, mainly for the purpose of complying with prescribed regimes and policies. Accounting information has not really become a useful basis for the decisions of unit leaders. Accounting has not proactively updated documents related to the field of accounting. Training to improve information technology capacity and skills and update new professional knowledge for accounting staff has not been paying attention. Not focusing on learning and properly realizing the benefits of accounting



## The Influence of the Level of Guarantee of Operating Expenses on the Application of Accounting Software in Public Non-Business Unit

software. The financial conditions of some public non-business unit, especially those without revenue sources, do not allow investment in a comprehensive accounting information system. To improve the quality of accounting information, we need to focus on the following solutions: Increase awareness and understanding of the leadership of public non-business unit about accounting software. When we help them understand the benefits of accounting software, it will likely increase their intention to apply accounting software in their units. Prepare cost estimates to deploy the construction of an information technology system to be suitable for applying accounting software. Training computer skills and software usage skills for accounting staff. Re-evaluate the existing points in accounting activities.

### REFERENCES

- 1) Decree No. 16/2015/ND-CP (2015). Regulations on the autonomy mechanism of public non-business units. (Hanoi) s.2 (Vietnam).
- 2) Decree No. 174/2016/ND-CP. (2016). Detailed regulations on a number of articles of the Accounting Law. (Hanoi) s.8. (Vietnam).
- 3) Law No. 88/2015/QH13 (2015). Accounting Law, (Hanoi) s.24 (Vietnam)
- 4) Loi, N. V., (2008). Financial Management textbook of HCSN unit, Finance Publishing House, Hanoi.
- 5) Loi, N. V., (2008). Accounting Principles Textbook, Finance Publishing House, Hanoi.



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## Students' Perceptions of 30 State of Muaro Jambi Junior High School Physical Education Learning During the Covid-19 Pandemic



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**ABSTRACT:** The way to make students easier to understand the content of Physical Education material can be presented online by the teacher using the learning media that is currently available in the COVID-19 era. Like Zoom, Google Meet, Google Forms, WhatsApp application, and others. This learning media can create a more interesting, interactive, and fun learning process and can continue learning even during the pandemic. This research aims to determine the perceptions of students at 30 State of Muaro Jambi Junior High School towards learning Physical Education, sports, and health online during the COVID-19 pandemic. The method used in this study is a survey method with data collection techniques using a questionnaire. The population in this study were grade students 30 State of Muaro Jambi Junior High School, who were taken using a random sampling technique. Data analysis used descriptive analysis as outlined in the form of a percentage. The results of the research show that the perception of students at 30 State of Muaro Jambi Junior High School towards learning Physical Education online via the WhatsApp application during the COVID-19 pandemic showed results in great category totaling 3 people with a percentage of 6.98%, the good category was 32 people with the percentage is 74.42%, the fair category is 8 people with a percentage of 18.60% and the less category is 0 people with a percentage of 0%.

**KEYWORDS:** Students Perception, E-Learning, WhatsApp Application, Physical Education.

### INTRODUCTION

Was a hard year for humans and the world was hit by the pandemic COVID-19, likewise in Indonesia. This virus is part of the coronavirus family and can infect humans. When the coronavirus attacks someone, it generally causes respiratory tract infections such as influenza, MERS (Middle East Respiratory Syndrome), and SARS (Severe Acute Respiratory Syndrome). COVID-19 is a new corona virus that was discovered in Wuhan, Hubei Province, China in 2019 (Ilmiyah, 2020; Hui, et al., 2020). COVID-19 case in Indonesia was confirmed on March 2nd, 2020 when foreign nationals from Japan who visited Indonesia were confirmed infected with this virus. Of course, this has changed the order of life that has taken place in general to become more wary. However, behind all these changes, COVID-19 has also created many positive and negative impacts on all living things. In terms of the world of education, the Government has done everything possible to minimize the number of cases of COVID-19 infection, one of which is the E-learning policy for all pupils and students.

Education policy during the emergency period of the spread of coronavirus (COVID-19), namely that the learning process from home is carried out with the following conditions: a. Home-based online or distance learning conducted to provide a meaningful learning experience for students. without being overwhelmed by demands to complete all curriculum deliverables for class progress and completion; b. Learning from home can focus on developing life skills, including in the condition of the COVID-19 era. Home learning activities and tasks between students based on students' interests and situation, including the gap of access or facilities to learning at home; d. Evidence or products of learning activities at home receive qualitative and useful feedback from teachers without the need for quantitative assessment.

The application of this model of online learning certainly influences the Physical Education learning process. According to the Regulation of the Minister of Education and Culture No. 413 / U / 1987, Physical Education is part of physical activity that aims to improve humans organically, neuromuscular, intellectually, and emotionally. Physical Education is a communication to achieve educational goals in general (Hustarda, 2010: 150). Therefore, Physical Education is one subject that exists for all levels of school, starting from elementary school, junior high school, high school, and even university.

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Physical Education aims to develop the physical environment, develop health aspects and physical conditions, and build good character for students so that students have strong personalities, then develop athletic attitudes integrity, and discipline through physical activity, the reality during the COVID-19 pandemic physical learning activities must be learned by online, where students and teachers do not interact directly. Based on research conducted by (Agoestyowati, 2020) it is revealed that there are several positive and negative impacts of online learning, the positive impacts he expressed are that students feel more comfortable in learning and understand many new applications for learning online, such as Zoom, Google Meet, WhatsApp and other e-learning application.

One of the most frequently used applications is Zoom. However, in using it, students faced several obstacles, such as difficulty accessing the internet, using up internet data very quickly, insufficient cellphone memory, and difficulty logging in. This obstacle was discussed by the physical education teacher in a brief interview during the observation period of Introduction to Schooling Fields at SMP Negeri 30 Muaro Jambi. He revealed that during the online learning process using Zoom, students experienced problems in the learning process due to poor signals and inadequate internet data, which made they were unable to master the learning material. For this reason, the teachers at 30 State of Muaro Jambi Junior High School decided to use the WhatsApp application as a link between students and teachers, so that learning can continue.

### METHOD

Population is the totality of all possibility values, both the results of counting and quantitative and qualitative measurements, of certain characteristics regarding objects that are complete and clear (Sudjana, 2005: 161). In this research, the research method used by researchers is descriptive qualitative. The population in this study were students of grades 7th A, 7th B, and 7th C 30 State of Muaro Jambi Junior High School. The data source used was a questionnaire instrument to determine the perceptions of students at 30 State of Muaro Jambi Junior High School towards learning Physical Education online through WhatsApp application during the COVID-19 pandemic. Before the questionnaire is distributed to students, this instrument will be tested for its level of validity first.

In this research, a questionnaire is the main instrument used to find out the perceptions of students at 30 State of Muaro Jambi Junior High School towards online physical education learning via the WhatsApp application during the COVID-19 pandemic. This questionnaire contains statements given to students in grade 7 A, 7 B, and 7 C at SMP Negeri 30 Muaro Jambi. In the questionnaire, the respondent only needs to choose the answers strongly agree, agree, disagree, or strongly disagree. These answers have a score each score is (SA) 4 score, (A) 3 score, (D) 2 score, (SD) 1 score.

Data collection using questionnaires is done in 2 ways, namely by distributing questionnaires via Google Forms or distributing them directly to students. This study used the first method by distributing research clusters via the Google form. Presentation of data aims to display any news or data in the form of graphs, tables, histograms, or other narrative text. Then finally based on each of the activities above, a decision is made on the program that has been and will be carried out.

### FINDINGS AND DISCUSSION

This research was conducted on April 5-April 10 2021 and obtained 43 respondents. The perception of students at 30 State of Muaro Jambi Junior High School towards online physical education subjects through the use of WhatsApp during the COVID-19 pandemic can be categorized as Good where the results of data processing are in classes and intervals 100-129. The percentage results of this research show that there are great categories totaling 3 people with a percentage of 6.98%, the good category was 32 people with a percentage is 74.42%, the fair category is 8 people with a percentage of 18.60% and the less category is 0 people with a percentage of 0%.

**Table 1. Research Result of Closed Questionnaire**

Categories	Intervals	Total	Percentage
Great	131-160	3	6,98%
Good	100-129	32	74,42%
Fair	70-99	8	18,60%
Less	40-69	0	0%
Total		43	100%

## Students' Perceptions of 30 State of Muaro Jambi Junior High School Physical Education Learning During the Covid-19 Pandemic

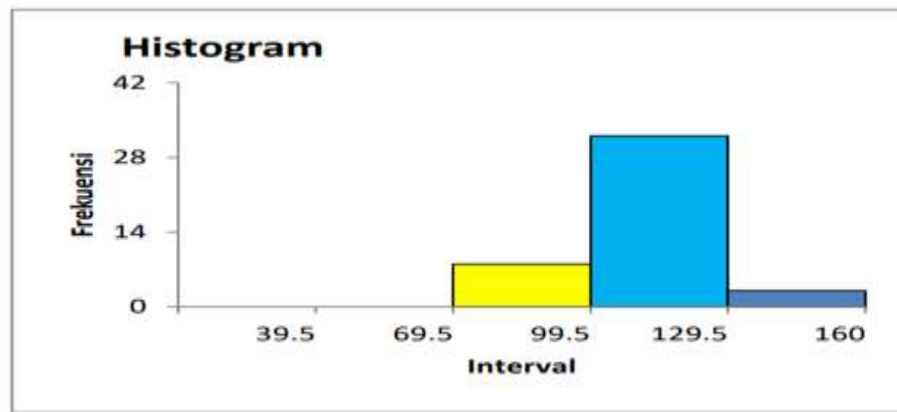


Figure 1. Research Results Histogram of Closed Questionnaire

Based on the results of the study, the perceptions of 30 State of Muaro Jambi Junior High School students towards online Physical Education learning via the WhatsApp application during the COVID-19 pandemic showed that there was great category of 3 people with a percentage of 6.98%, the good category of 32 people with the percentage is 74.42%, the fair category is 8 people with a percentage of 18.60% and the less category is 0 people with a percentage of 0%. Based on the information above, the researcher analyzed that the largest percentage of students were in the good category. Therefore, it can be concluded that Physical Education learning carried out online via the WhatsApp application during the COVID-19 pandemic at 30 State of Muaro Jambi Junior High School is categorized as Good. WhatsApp is an information technology that is very popular during the pandemic era, especially its use in the world of education as a learning medium in supporting the success of an e-learning activity. Feature services owned by WhatsApp such as WhatsApp group chat, telephone, personal chat, and emoticons are often used by teachers, to send messages, documents, photos, videos, and also PDF documents. In this way, learning will be more interesting and enjoyable. Various features can be accessed for free using the internet network.

### CONCLUSIONS

Based on the results of research on the perceptions of 30 State of Muaro Jambi Junior High School students towards online Physical Education learning via the WhatsApp application during the COVID-19 pandemic, the results showed that 32 out of 43 students gave statements and were in a good category. From the description above, it can be concluded that online Physical Education learning activities via the WhatsApp application at 30 State of Muaro Jambi Junior High School are in a good category. The learning process which is carried out online via the WhatsApp application should be used as an alternative learning even outside of the pandemic because this learning model can increase student activity in learning. What's more, the online learning model can add variety to learning so that student didn't feels bored in the learning process in class, for example using cartoon animation as a learning resource and making videos as practical value so that the learning process becomes more fun.

### REFERENCES

- 1) A.M Bandi Utama. (2011). Pembentukan Karakter Bermain Anak Melalui Aktivitas Bermaian Dalam Pendidikan Jasmani. Yogyakarta: Jurusan Pendidikan Olahraga. FIK. UNY
- 2) A.M Sudirman. (2011). Interaksi dan Motivasi Belajar dan Mengajar. Jakarta: PT. Grafindo Indonesia
- 3) Anitah, S. (2009). Media pembelajaran. Surakarta: Yuma Pustaka bekerja sama dengan FKIP UNS.
- 4) Arifin, Zainal. 2018. Penelitian Pendidikan: Metode dan Paradigma Baru. Bandung: PT Remaja Rosdakarya.
- 5) Arikunto, Suharsimi. 1998. Prosedur Penelitian Suatu Pendekatan Praktek. Jakarta: PT. Rineka Cipta
- 6) Desmita. (2012). Psikologi Perkembangan Peserta didik. Bandung: PT. Remaja Rosdakarya offset.
- 7) Hadi, Sutrisno. 1999. "Methodology Research". Yogyakarta : Yayasan Penerbit Fakultas Psikolog UGM.
- 8) Hariyanto, Suryono (2011) Belajar dan Pembelajaran dan Konsep Dasar. Bandung PT. Remaja Rosdakarya
- 9) Hasanah, N. R., Adi, I. P. P., & Suwiwa, I. G. (2021). Survey Pelaksanaan Pembelajaran Pjok Secara Daring Pada Masa Pandemi Covid-19. Jurnal Kejaora (Kesehatan Jasmani Dan Olah Raga), 6(1), 189-196.
- 10) Husdarta. (2010). Psikologi Olahraga. Bandung: Alfabeta
- 11) Ibnu Syamsi . Pokok-Pokok Organisasi dan Manajemen.1988. hal.2
- 12) Jalaludin, Rakhmat. (1998). Psikologi Komunikasi. Bandung: Rosda
- 13) Rosdiani, Dini. (2013). Model Pembelajaran Langsung Dalam Pendidikan Jasmani dan Kesehatan. Bandung: Alfabeta

## Students' Perceptions of 30 State of Muaro Jambi Junior High School Physical Education Learning During the Covid-19 Pandemic

- 14) Ruch, Floyd L. 1967. Psychology and Life, 7 Edt. Scott. Atlanta: Foresman and Company
- 15) Sanjaya. 2011. Model-model Pembelajaran. Jakarta: Bumi Aksara.
- 16) Slameto. 2010. Belajar dan faktor-faktor yang Mempengaruhinya. Jakarta: PT. Rineka Cipta
- 17) Sri Rumini, dkk. (2006). Psikologi Pendidikan. Yogyakarta: UNY Press 38
- 18) Sudjana. (2005). Metode Statistika. Bandung: PT Tarsito
- 19) Suryabrata, Sumadi, 2011. Psikologi Pendidikan, Jakarta: PT. Raja Grafindo Persada.
- 20) Syah, M. (2007). Psikologi Pendidikan dengan Pendekatan Baru. Bandung: PT. Remaja Rosdakarya.



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# Effect of Feature Selection on the Accuracy of Machine Learning Model



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**ABSTRACT:** In real life data science problems, it's almost rare that all the features in the dataset are useful for building a model. In machine learning, feature selection is the process of selecting a subset of relevant features or attributes for constructing a model. Removing irrelevant and redundant features and, selecting relevant features will improve the accuracy of a machine learning model. Furthermore, adding unnecessary variables to a model increases the overall complexity of the model. Our experiment indicates that the accuracy of a classification model is highly affected by the process of feature selection. We train three algorithms (K-Nearest Neighbors, Decision Tree, Multi-layer Perceptron) by selecting all the features and we got accuracies 49%, 84% and 71% accordingly. After doing some feature selection without any logical changes in models code the accuracy scores jumped to 82%, 86% and 78% accordingly which is quite impressive.

**KEYWORDS:** Machine Learning, Feature Selection, Accuracy, Dimensionality Reduction, Classification

## 1. INTRODUCTION

Feature selection is one of the core concept in machine learning which hugely impacts the performance of your model, especially in datasets with many input variables and a low variance [1]. The goal of feature selection process in machine learning is to find the best set of features that allows one to build optimized models that will have a great accuracy score [2]. The input data that we use to train our machine learning model have a huge influence on the model's performance. The increase in dimensionality of data can lead to big challenges in both supervised and unsupervised learning process. Training your model with redundant features reduces the model's overall capability and may also reduce model's accuracy. Moreover, adding extra variables to a model increases the overall complexity of the model [3]. Performing feature selection offers several benefits, it reduces overfitting, improves accuracy, and reduces training time. This paper will provide a great analysis of the importance of feature selection in constructing an optimized machine learning model [4].

### 1.1 RESEARCH QUESTION

In this research paper we will study the impact of feature selection process on the accuracy of a machine learning model by using three different machine learning algorithms (KNN, Decision Tree, Multi-layer Perceptron). We aim to answer the following research questions:

- Does the increase in input variables with a low variance decrease the overall capability of a machine learning model?
- Does the feature selection process improve the accuracy of machine learning model compared to using all features?

## 2. BACKGROUND

The field of machine learning is concerned with automated discoveries of regularities in data with use of computer algorithms. These regularities can then be used to take actions, such as classifying data into different categories or making predictions. As the data may be of different kinds, the machine learning algorithms that learn from these data may differ too [5]. The machine learning algorithms used for conducting this research are discussed below.

### 2.1 K-Nearest Neighbors

K-Nearest Neighbors is one of the simplest machine learning algorithms based on supervised learning technique. It is effective for classification as well as regression. However, it is more widely used for classification problems. It is a lazy learner algorithm because it does not learn from the training set immediately [6]. In case of KNN algorithm, a particular value of K is

## Effect of Feature Selection on the Accuracy of Machine Learning Model

fixed which helps us in classifying the unknown data point. When a new data point comes in KNN will predict its class by performing the following steps [7]:

Step 1: Store the training set.

Step 2: For each new unlabeled data

- A. Calculate Euclidean distance with all training data points using the formula:  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
- B. Find the k- nearest neighbors.
- C. Assign class containing the maximum number of nearest neighbors.

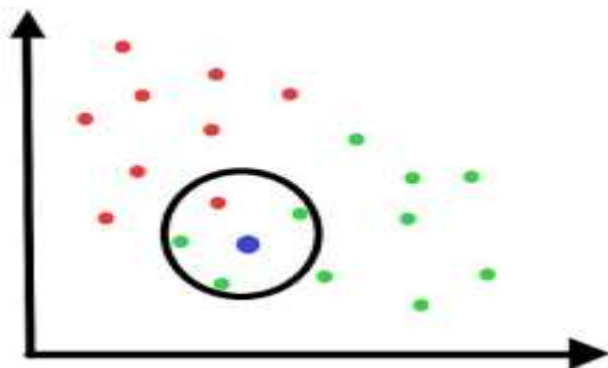


Figure 1: Working of KNN

### 2.2 DECISION TREE

A decision tree is a supervised learning algorithm used for both classification and regression problems. It takes the form of a tree with branches representing the potential answers to a given question [8]. In decision tree it is very important to select the right attribute or feature for splitting the dataset. Random selection is not a good idea it will generate bad result and low accuracy of prediction. In order to find the best splitting attribute, we need to consider feature selection measures like information gain. Information gain is based on entropy [9]. Entropy measures the extent of impurity or randomness in a dataset. If all the observations of subsets belong to one class, the entropy of that dataset would be 0. The entropy of the whole set of data can be calculated by using the following equation:

$$H(S) = - \sum_{i=1}^N P_i \log_2(P_i)$$

In the above equation, S represent set of all instances, N represent number of distinct class values and Pi represent event probability. Information gain indicates how much information a particular variable or feature gives us about the final outcome. It can be found out by subtracting the entropy of a particular attribute inside the data set from the entropy of the whole data set [8], [9].

$$\text{Gain}(A, S) = H(S) - \sum_{j=1}^V \frac{|S_j|}{|S|} \cdot H(S_j) = H(S) - H(A, S)$$

### 2.3 ARTIFICIAL NEURAL NETWORK

The Artificial Neural Network (ANN) is a deep learning method that arose from the concept of working of the human brain. The workings of ANN are extremely similar to those of biological neural networks, although they are not identical [10]. There are three layers in the network architecture: the input layer, the hidden layer (more than one), and the output layer. Because of the numerous layers are sometimes referred to as the Multi-Layers Perceptron [10], [11].

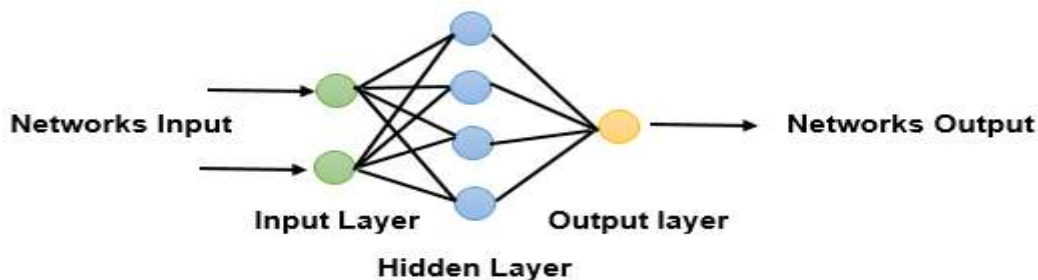


Figure 2: Architecture of Artificial Neural Network

## Effect of Feature Selection on the Accuracy of Machine Learning Model

### 3. FEATURE SELECTION METHODS

In general, feature selection algorithms are categorized into Supervised and Unsupervised feature selection [12].

- Supervised feature selection method uses the output label class for feature selection. Supervised feature selection methods can be further categorized as: Filter, Wrapper and Embedded approach.
- Unsupervised feature selection method refers to the method which does not need the output label class for feature selection.

#### 3.1 Filter Method

In this method, we use correlation to check if the features are positively or negatively correlated to the output labels and drop or select features accordingly. These methods are faster and less computationally expensive than wrapper methods. When dealing with high-dimensional data, it is computationally cheaper to use filter methods. Eg: Information Gain, Chi-Square Test, Fisher's Score, etc [12], [13].

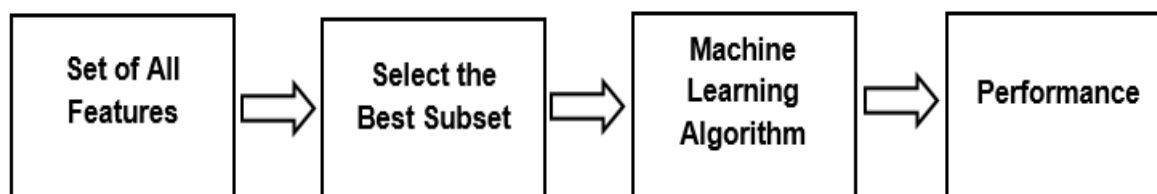


Figure 3: Filter Method flowchart

#### 3.2 Wrapper Method

We split our data into subsets and train a model using this. Based on the output of the model, we add and subtract features and train the model again. It forms the subsets using a greedy approach and evaluates the accuracy of all the possible combinations of features. Eg: Forward Selection, Backwards Elimination, etc [13].

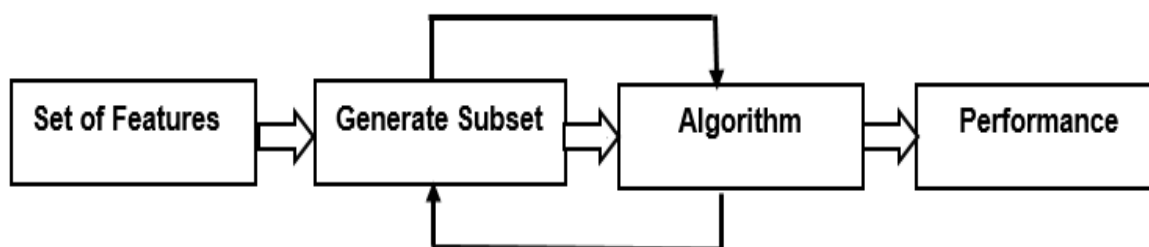


Figure 4: Wrapper Method flowchart

#### 3.3 Embedded Method

This method combines the qualities of both the Filter and Wrapper method to create the best subset. This method takes care of the machine training iterative process while maintaining the computation cost to be minimum. Eg: Lasso and Ridge Regression [12], [14].

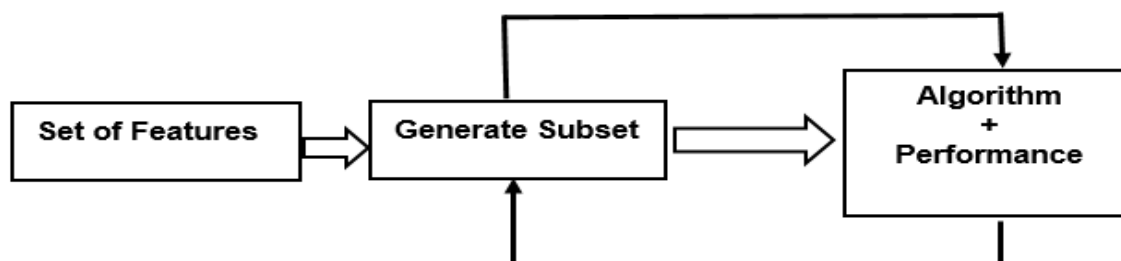


Figure 5: Embedded Method flowchart

## 4. METHODOLOGY

To study the impacts of feature selection on the accuracy of machine learning model we will use a dataset named mobile price prediction which is available on kaggle machine learning repository. There is total 2000 instances, 20 features and one output



## Effect of Feature Selection on the Accuracy of Machine Learning Model

variable which is mobile price range in dataset. In this project, based on the mobile specifications (battery power, 3G enabled, wifi, bluetooth, ram etc.) we are predicting price range of the mobile as output variable. We will train 3 classification algorithms (KNN, Decision Tree, Multi-layer Perceptron) to predict the output by selecting all the features. After training the algorithms by using all 20 features, we will now perform feature selection in order to find 5 best features which are highly correlated with output variable and having huge impacts on accuracy of our model. Finally, we will train the previously used 3 algorithms by using 5 best features without doing any logical changes in our models code, it clearly shows that the accuracy of a machine learning model is highly effected by the process of feature selection.

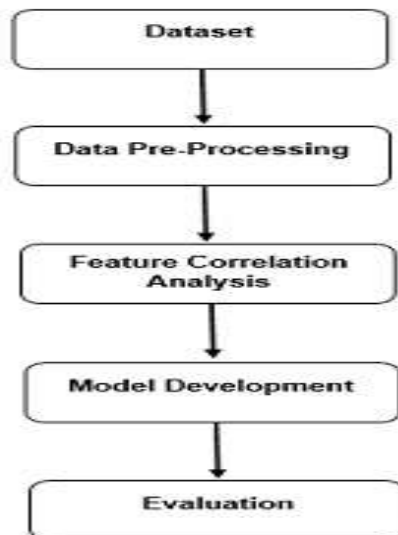


Figure 6: Flowchart of the Methodology

### 5. EXPERIMENTAL RESULT AND DISCUSSION

In order to select those features that have strongest relationship with the output variable, we use scikit-learn library it provides the SelectKBest class that can be used with a suite of different statistical tests to select a specific number of features. This technique belongs to filter method of feature selection as it uses statistical tools to evaluate the relationship of each input variable and the output variable and then drop the irrelevant features. But before starting practical work let check the first 20 rows of our dataset.

index	battery power	blue	clock speed	color	cpu	camera	ram	os	mobile wt	screen	os	os boots	os with	ram	os fi	os v	talk time	three g	touch screen	wifi	gps
0	842	0	2.2	0	1	0	7	0.6	188	2	2	20	756	2549	9	7	19	0	0	1	1
1	1021	1	0.5	1	0	1	53	0.7	136	3	6	905	1988	2631	17	3	7	1	1	0	2
2	503	1	0.5	1	2	1	41	0.9	145	5	6	1263	1716	2603	11	2	9	1	1	0	2
3	615	1	2.5	0	0	0	10	0.8	131	6	9	1216	1788	2769	16	8	11	1	0	0	2
4	1821	1	1.2	0	13	1	44	0.6	141	2	14	1208	1212	1411	8	2	15	1	1	0	1
5	1859	0	0.5	1	3	0	22	0.7	164	1	7	1004	1654	1067	17	1	10	1	0	0	1
6	1821	0	1.7	0	4	1	10	0.8	139	8	10	381	1019	2220	13	8	18	1	0	1	3
7	1954	0	0.5	1	0	0	24	0.8	187	4	0	512	1149	790	16	3	5	1	1	1	0
8	1445	1	0.5	0	0	0	53	0.7	174	7	14	386	836	1099	17	1	20	1	0	0	0
9	509	1	0.6	1	2	1	9	0.1	93	5	15	1137	1224	513	19	10	12	1	0	0	0
10	769	1	2.9	1	0	0	9	0.1	182	5	1	248	874	3046	5	2	7	0	0	0	3
11	1520	1	2.2	0	5	1	33	0.5	177	8	18	151	1005	3826	14	9	13	1	1	1	3
12	1815	0	2.8	0	2	0	33	0.6	159	4	17	607	748	1482	18	0	2	1	0	0	1
13	883	1	2.1	0	7	0	17	1	198	4	11	344	1440	2680	7	1	4	1	0	1	2
14	1866	0	0.5	0	13	1	52	0.7	185	1	17	356	563	373	14	9	3	1	0	1	0
15	775	0	1	0	3	0	46	0.7	159	2	16	862	1864	568	17	15	11	1	1	1	0
16	838	0	0.5	0	1	1	13	0.1	196	8	4	984	1850	3554	10	9	19	1	0	1	3
17	595	0	0.9	1	7	1	23	0.1	121	3	17	441	810	3752	10	2	10	1	1	0	3
18	1131	1	0.5	1	11	0	49	0.6	181	5	18	658	878	1835	29	13	16	1	1	0	1
19	682	1	0.5	0	4	0	19	1	121	4	11	982	1064	2337	11	1	10	0	1	1	1

Figure 7: First 20 rows of the dataset

## Effect of Feature Selection on the Accuracy of Machine Learning Model

Now we will select 5 best features from our dataset:

```
import pandas as pd
import numpy as np
from sklearn.feature_selection import SelectKBest
from sklearn.feature_selection import f_classif
data = pd.read_csv("train.csv")
X = data.iloc[:,0:20]
y = data.iloc[:, -1]
bestfeatures = SelectKBest(score_func=f_classif, k=5)
fit = bestfeatures.fit(X,y)
dfscores = pd.DataFrame(fit.scores_)
dfcolumns = pd.DataFrame(X.columns)
featureScores = pd.concat([dfcolumns,dfscores],axis=1)
featureScores.columns = ['Feature','Score']
print(featureScores.nlargest(5,'Score'))
```

Output of the program:

```
In [1]: runfile('C:/Users/DELL/Desktop/RESEARCH,
RESEARCH/archive')
      Feature      Score
13      ram  3520.110824
0  battery_power  31.598158
12     px_width  22.620882
11     px_height  19.484842
8     mobile_wt   3.594318
```

In [2]:

The output of the above program clearly show that ram is the highly correlated feature with price range followed by battery power, pixel width and height. Now we will see how the accuracy and prediction power of (KNN, Decision Tree, Multi-layer Perceptron) can be affected by the process of feature selection, to do the experiments first we will train the algorithms by selecting all the features:

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.tree import DecisionTreeClassifier
from sklearn.linear_model import Perceptron
from sklearn.metrics import accuracy_score
data = pd.read_csv("train.csv")
X = data.iloc[:,0:20]
y = data.iloc[:, -1]
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.25, random_state = 0)
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.transform(X_test)
knn_classifier = KNeighborsClassifier(n_neighbors = 5)
knn_classifier.fit(X_train, y_train)
knn_pred=knn_classifier.predict(X_test)
knn_score=accuracy_score(y_test,knn_pred)
print('Accuracy of K-Nearest Neighbors using all 20 features: ',knn_score)
tree_classifier=DecisionTreeClassifier(criterion='entropy')
tree_classifier.fit(X_train,y_train)
tree_pred=tree_classifier.predict(X_test)
tree_score=accuracy_score(y_test,tree_pred)
```

## Effect of Feature Selection on the Accuracy of Machine Learning Model

```
print('Accuracy of Decision Tree using all 20 features: ',tree_score)
ANN_classifier=Perceptron(random_state=1)
ANN_classifier.fit(X_train, y_train)
ANN_pred=ANN_classifier.predict(X_test)
ANN_score=accuracy_score(y_test,ANN_pred)
print('Accuracy of Artificial Neural Network using all 20 features: ',ANN_score)
```

Output of the program:

```
In [2]: runfile('C:/Users/DELL/Desktop/RESEARCH/archive/all_features.py',
RESEARCH/archive')
Accuracy of K-Nearest Neighbors using all 20 features: 0.498
Accuracy of Decision Tree using all 20 features: 0.848
Accuracy of Artificial Neural Network using all 20 features: 0.712
```

Now it is time to train the algorithms by using 5 best features and ignore the rest of the features which are not important for our model construction and can see the improvement in accuracy:

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.tree import DecisionTreeClassifier
from sklearn.linear_model import Perceptron
from sklearn.metrics import accuracy_score
data = pd.read_csv("train.csv")
best_data=data[['ram','battery_power','px_width','px_height','mobile_wt','price_range']].copy()
X = best_data.iloc[:,0:5]
y = best_data.iloc[:,-1]
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.25, random_state = 0)
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.transform(X_test)
knn_classifier = KNeighborsClassifier(n_neighbors = 5)
knn_classifier.fit(X_train, y_train)
knn_pred=knn_classifier.predict(X_test)
knn_score=accuracy_score(y_test,knn_pred)
print('Accuracy of K-Nearest Neighbors using 5 best features: ',knn_score)
tree_classifier=DecisionTreeClassifier(criterion='entropy')
tree_classifier.fit(X_train,y_train)
tree_pred=tree_classifier.predict(X_test)
tree_score=accuracy_score(y_test,tree_pred)
print('Accuracy of Decision Tree using 5 best features: ',tree_score)
ANN_classifier=Perceptron(random_state=1)
ANN_classifier.fit(X_train, y_train)
ANN_pred=ANN_classifier.predict(X_test)
ANN_score=accuracy_score(y_test,ANN_pred)
print('Accuracy of Artificial Neural Network using 5 best features: ',ANN_score)
```

Output of the program:

```
In [3]: runfile('C:/Users/DELL/Desktop/RESEARCH/archive/best_data.py',
archive')
Accuracy of K-Nearest Neighbors using 5 best features: 0.826
Accuracy of Decision Tree using 5 best features: 0.866
Accuracy of Artificial Neural Network using 5 best features: 0.78
```

## Effect of Feature Selection on the Accuracy of Machine Learning Model

### 6. CONCLUSION

Feature selection is an important concept in machine learning, because it may have huge effect on accuracy and prediction power of a machine learning model. Moreover, removing extra variables from a dataset decreases the overall complexity of the model. It reduces overfitting, improves accuracy, and reduces training time.

In this research paper, we have investigated the impacts of feature selection on the accuracy of a machine learning model by using three different classification algorithms (K-Nearest Neighbors, Decision Tree and Artificial Neural Network). We observed that the accuracy scores of these algorithms are highly affected by the process of feature selection. The experiment clearly shows that the accuracy scores of the algorithms will increase from 49%, 84% and 71% to 82%, 86% and 78% accordingly. Therefore, feature selection is highly recommended especially in high dimensional datasets.

### REFERENCES

- 1) J. Miao and L. Niu, "A Survey on Feature Selection," *Procedia Comput. Sci.*, vol. 91, no. Itqm, pp. 919–926, 2016, doi: 10.1016/j.procs.2016.07.111.
- 2) E. M. Karabulut, S. A. Özel, and T. İbrikçi, "A comparative study on the effect of feature selection on classification accuracy," *Procedia Technol.*, vol. 1, pp. 323–327, 2012, doi: 10.1016/j.protcy.2012.02.068.
- 3) R. C. Chen, C. Dewi, S. W. Huang, and R. E. Caraka, "Selecting critical features for data classification based on machine learning methods," *J. Big Data*, vol. 7, no. 1, 2020, doi: 10.1186/s40537-020-00327-4.
- 4) Y. Akhiat, Y. Manzali, M. Chahhou, and A. Zinedine, "A New Noisy Random Forest Based Method for Feature Selection," *Cybern. Inf. Technol.*, vol. 21, no. 2, pp. 10–28, 2021, doi: 10.2478/cait-2021-0016.
- 5) A. Cardew, *Antiquity and anxiety: Freud, jung, and the impossibility of the archaic*. 2018. doi: 10.4324/9780203733332.
- 6) K. Taunk, S. De, S. Verma, and A. Swetapadma, "A brief review of nearest neighbor algorithm for learning and classification," *2019 Int. Conf. Intell. Comput. Control Syst. ICCS 2019*, no. May, pp. 1255–1260, 2019, doi: 10.1109/ICCS45141.2019.9065747.
- 7) M. Suyal and P. Goyal, "A Review on Analysis of K-Nearest Neighbor Classification Machine Learning Algorithms based on Supervised Learning," *Int. J. Eng. Trends Technol.*, vol. 70, no. 7, pp. 43–48, 2022, doi: 10.14445/22315381/IJETT-V70I7P205.
- 8) S. Raschka, *Python machine learning*. Packt publishing ltd., 2015.
- 9) Pooja Gulati, Amita Sharma, and Manish Gupta, "Theoretical Study of Decision Tree Algorithms to Identify Pivotal Factors for Performance Improvement: A Review Pooja Gulati," *Int. J. Comput. Appl.*, vol. 141, no. 14, pp. 975–8887, 2016.
- 10) M. Stephen, *Machine Learning An Algorithmic Perspective Second Edition*. 2014. [Online]. Available: <https://b-ok.cc/book/2543746/ef80cb>
- 11) T. Price and N. Lindqvist, "Evaluation of Feature Selection Methods for Machine Learning Classification of Breast Cancer," pp. 1–40, 2018.
- 12) Y. Bouchlaghem, Y. Akhiat, and S. Amjad, "Feature Selection: A Review and Comparative Study," *E3S Web Conf.*, vol. 351, pp. 1–6, 2022, doi: 10.1051/e3sconf/202235101046.
- 13) Y. B. Wah, N. Ibrahim, and H. A. Hamid, "Feature selection methods : Case of filter and wrapper approaches for maximising classification accuracy SCIENCE & TECHNOLOGY Feature Selection Methods : Case of Filter and Wrapper Approaches for Maximising Classification Accuracy," no. May 2020, 2018.
- 14) A. Jović, K. Brkić, and N. Bogunović, "A review of feature selection methods with applications," *2015 38th Int. Conv. Inf. Commun. Technol. Electron. Microelectron. MIPRO 2015 - Proc.*, no. May, pp. 1200–1205, 2015, doi: 10.1109/MIPRO.2015.7160458.



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## The Influence of the Three-Component Commitment Model on the Intention to Leave of Employees Working in Insurance Enterprises



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**ABSTRACT:** Using appropriate research methods and adhering to the research objectives helped us complete the article and clarify the necessary content. The document research method helped us build a theoretical basis for the article. The content of the theoretical basis presented in the article includes Organizational Commitment and the three-component commitment model (affective commitment, continuance commitment and normative commitment) which is the basis and foundation for the analysis and proposed solutions. Using the random sampling method to ensure objectivity, 240 valid surveys were used to analyze and evaluate the commitment of employees working at Vietnamese insurance enterprises. Data analysis results show that the commitment factor is rated at a low average level. The surveyed employees stated that their commitment to their organization is not high, which means that the possibility of leaving the job is very high. To increase attachment and commitment to the business, we have proposed a number of solutions such as building corporate culture, developing serious recruitment regulations and always having supportive interactions between employees in the work environment.

**KEYWORDS:** Employees; Intention to leave; Insurance companies; Organizational commitment; Vietnam

### 1. INTRODUCTION

A high employee turnover rate will cost businesses training costs, revenue losses and recruitment costs. At the same time, employees quitting their jobs causes businesses to lack organizational stability, affecting production costs and affecting productivity and quality. Intention to leave an organization is an employee's intention to quit due to hindering reasons such as commitment to the organization, fairness, pressure, work, working environment and satisfaction. Therefore, human resource managers need to control employee retention problems and develop policies to minimize and prevent them before employees decide to leave. Organizational commitment comes from psychology and is the accompanying emotional connection between an individual and an organization. Organizational commitment affects many business activities such as job performance, revenue and employee behavior within the organization. In addition, the sense of organizational commitment also affects role stress, lack of focus at work, recruitment ability as well and the allocation of organizational management rights. The authors Meyer & Allen (1991) proposed a three-component commitment model that has received much agreement from scholars. These two authors' three-component model of commitment builds on the definitions and integration of previous authors' research. The three issues we raise are closely related to each other. Low commitment to the organization will lead to intention to quit and affect the development of the business. Therefore, evaluating and providing solutions to promote the commitment factor in employees will solve difficulties for businesses. The purpose of this study is to evaluate the impact of the three-component model of organizational commitment on the intention to leave employees working in insurance enterprises. Assess the level of commitment of the employees. What is the solution to improve commitment for employees working in insurance businesses?

### 2. THEORETICAL BASIS

#### 2.1. Commitment to the organization

Organizational commitment is a topic of interest to many researchers. In terms of organizational behavior, commitment to the organization comes from the individual's psychology toward the organization. Author Becker (1960) said that "Commitment forms when an individual, by placing a bet on the organization, connects all unrelated interests with a sequence of appropriate actions" (p.32). In his research on commitment and social organization, author Kanter (1968) identified Commitment as "the accompanying

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emotional connection between an individual and an organization" (p.507). The two authors Hrebiniak & Alutto (1972) said that Commitment is "a structural phenomenon that emerges as a result of transactions between organizations and individuals and the process of change between parties or investments over time" (p.556). Organizational commitment has an impact on many business activities such as work performance, revenue, and employee behavior in the organization. In addition, the sense of organizational commitment also affects role stress, lack of focus at work, recruitment ability as well and the allocation of organizational management rights. Researchers have made many different observations about organizational commitment and models to measure it. One of the typical models proposed by the authors Meyer & Allen (1991) has received the most agreement. These two authors' three-component model of commitment builds on the definitions and integration of previous authors' research. According to the authors, the purpose of this model is to argue the compatibility between three human psychological states and three commitment components: "affective commitment", "continuance commitment" and "normative commitment" (Meyer & Allen, 1991, pp.61-89). While the research of Meyer & Allen (1991) shows that there are three "mindsets" used to describe employee commitment to the organization, author Mercurio (2015) expanded this model by how to "review empirical and theoretical research on organizational commitment". Author Mercurio has posited that "affective commitment" or affection is "the core essence of organizational commitment" (Mercurio, 2015, pp.389-414). In this study, we also use the three-component commitment model to evaluate the intention to leave the job of employees working at Vietnamese insurance enterprises. Therefore, we will present the elements of Meyer & Allen's (1991) commitment model one by one as a basis for the article's analysis.

### *Affective commitment*

Meyer & Allen (1991) defined "Emotional commitment" as a positive, strong emotional attachment between employees and the organization. The two authors consider affective commitment to be the "desire" component of organizational commitment. They reasoned that "An employee with emotional commitment clearly identifies with the organization's goals and wishes to continue to be a part of the organization" and this employee makes a commitment to the organization because he or she wants to do so (pp.61-89). According to these authors, emotional commitment is also influenced by demographic characteristics such as gender, age, education level, and length of time with the unit, but the level of influence can increase or decrease in many ways. Factors such as economic and social. The influence of demographic factors can be seen but there is no precise and clear way to determine it. Meyer & Allen (1991) provided an example to demonstrate that "the positive relationship between tenure and commitment may be due to tenure-related differences in job status and quality" (pp. .61-89). Some other researchers believe that the emotional commitment factor developed by Meyer & Allen is mainly based on Mowday et al. (1982) and the concept of commitment, based on earlier work by Kanter (1968) (Mercurio, 2015, pp.389-414). Mercurio (2015) also states that "affective commitment is considered an enduring, indispensable, and central characteristic of organizational commitment" (pp.389-414).

### *Continuance commitment*

Continuity commitment is a "need" component that is either gained or lost when working in an organization. "Side bets" or investments are uncertain risks. An individual's decision to leave or stay with the organization can be a potential gain or loss. An employee may be committed to the organization because he or she perceives the incentives to be lost by losing organizational membership to be very high as outlined in the "side bet theory" (Becker, 1960, pp.32- 40). When deciding to leave an organization, they need to determine that they will lose their status as a member of that organization and "costs such as economic costs", pension accumulation, and social costs. It includes friendly relationships with co-workers that also act as costs when employees are not committed to continuing with the organization. However, when an employee perceives positive costs as insufficient reasons for them to stay with an organization. The employee must then use alternatives, such as another organization. They will disrupt collegial relationships and other "side bets" that will arise when leaving the organization. An important issue is that these "side bets" do not appear immediately but rather "accumulate with age and tenure" (Meyer & Allen, 1991, pp.61-89).

### *Normative commitment*

When employees commit to sticking with and staying with the organization based on a sense of obligation, it is "Normative Commitment", this is the third component in the organizational commitment model. These feelings of "obligation" can develop from an employee's compliance and stress before and after joining the organization. Let's look at an example to understand this tension. For example, an organization makes an investment in training an employee, who then feels a "moral obligation" and "must put in the effort at work and stay with the organization to pay". "Normative commitment" can also reflect an "internalized" norm. It develops before an employee joins an organization through relatives or other connections, that one "must be loyal to his or her organization." Employees stay with the organization because they "have to." However, if an investing individual bets heavily on the organization they work for, they may receive an "enhanced bonus". In organizations that promote employee loyalty and engagement, the normative commitment component is given even more importance. These organizations will, through rewards,

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incentives, or other forms of support, raise the standard commitment of their employees. When rewards and incentives are given to many employees the commitment to providing regular benefits will cause standard commitment among employees to increase. Wiener (1982) stated that an employee with increasing commitment to the organization will contribute more at work and will have the opportunity to contribute more to the development and success of the organization. These employees will also have higher levels of job satisfaction. Conversely, "high levels of job satisfaction reduce employee turnover and increase an organization's ability to recruit and retain talent" (pp.418–428).

### **2.2. Intention to leave**

According to author Dung (2015), "A worker's intention to change jobs (quit) is the intention to leave the current working environment to move to another working environment. The intention here means that before actually leaving the current work environment, these people had the consciousness to do this. According to Diem & Quan (2007), "The conscious act of quitting a job by employees is a manifestation of a transformation process in their awareness. This awareness comes from their sense of self and their awareness of their organization and profession." Intention to change jobs measures the employee's attachment to the organization and job, expressed at three levels. At the first level, employees are preparing to move to a new organization and are currently in the process of preparing to hand over work. The employee's level of attachment to the organization in this case is very low. The second level is for employees who are looking for a new job in the future to transfer. The employee's level of attachment to the organization in this case is at an average level. At the third level, employees are looking for a new job. The level of attachment to the organization in this case is high. According to Masdi (2009), intention to quit is the awareness of people's behavior of wanting to quit their current job to switch to another job. Individuals intend to leave when they perceive that they will "continue to stay or leave" the organization where they are working. Intention to leave a job stems from reasons such as low levels of personal satisfaction with some aspects of the work environment, relationships with colleagues or the organization, and boredom in the level of work engagement of employees leading to poor performance.

According to Mehrasa & Soroosh (2011), intention to leave an organization is defined as an employee's intention to quit due to hindering reasons such as commitment to the organization, fairness, pressure, work, and environment work and satisfaction. This is only an intention, not a decision. Therefore, the main concern of human resource managers is to anticipate necessary employee retention problems and develop policies to minimize and prevent them before employees decide to leave. Employee turnover not only affects training costs, recruitment costs and organizational instability but also affects production costs but also affects productivity and quality.

Another concept by Muhammad et al. (2013) on "intention to quit" in a study focusing on the causes of employees' intention to quit. The author explained the intention to quit as follows: Intention to quit is an employee's thoughts about another job at the same time. You may still be in your current job, but you could do something different in terms of the aspects that are important to you. Those important aspects are specifically interpersonal relationships, workplace communication, work environment, or salary and benefits at the new job. "I hope my job will be more stable." Here's an idea that involves taking some risks in a new job if you don't like your current job, feel bored, or are under pressure. Therefore, what are the important issues that need to be done so that employees can work with peace of mind, and what issues need to be improved so that employees can give up the idea of quitting their job?

## **3. METHODS**

The research uses document research methods and data investigation methods. Document research method: We searched for published documents on commitment to the organization. Appropriate and clearly sourced documents are classified, and the author's important comments are used in the article to build a theoretical basis for the research. Data investigation method: We built a questionnaire with content corresponding to the three components of the commitment model. The subjects selected as the survey sample included employees working at insurance enterprises. A random sampling method is used. We conduct interviews with any employees we meet at insurance businesses with their consent. With the collected data, we will eliminate invalid surveys. After cleaning the data, there were 240 surveys that were eligible for analysis.

## **4. RESULTS**

### **4.1. The current situation of employee turnover in the insurance industry**

Insurance is an important business sector in the Vietnamese economy. Insurance companies' products support and ensure social security and are the main capital channel for investment activities. In developed insurance markets like Europe, employees working in the insurance and finance fields are job that brings high income and is desired by many people who can apply to participate in

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this labor market. However, in late insurance development markets such as Asia, especially Vietnam, the insurance industry is not highly appreciated, and many employees choose to do this job as a part-time job and not fully focused on the task. Personnel working in insurance businesses are not professionally qualified and mainly want to work temporarily for a period of time and move on to another job. This situation has caused Vietnam's insurance businesses to develop unsustainably. Insurance businesses often waste a large amount of training and recruitment costs every year and lose revenue when employees leave their jobs.

### 4.2. Survey results of the three-component commitment model

With 240 surveys on the three components of "Emotional Commitment", "Continuing Commitment" and "Standard Commitment" from employees working in insurance businesses in Vietnam, we compiled and analyzed the results in Table 1.

**Table 1: Results of surveying the three elements of the Commitment model**

Criteria	Affective commitment	Continuance commitment	Normative commitment
Totally disagree	14	16	12
Disagree	61	47	44
Normal	68	82	45
Agree	65	52	80
Totally agree	32	43	59
Total	240	240	240

*Source: Compiled and analyzed from survey data by the research team*

From the table of results of the commitment model survey, we can see that the three variables of the commitment model are evaluated by employees at an average value. Of the 240 valid answer sheets selected for analysis data, 42 employees participating in the survey responded strongly disagree, accounting for 17.5%, and 152 employees responded by choosing no. Agree accounts for 63.3%, 195 times of employees polled say Normal accounts for 81.3%, accounting for a pretty good rate of 81.3% of employees who are asked to agree 197 times choose from staff but Comments: Totally agree, only 134 employees gave this answer, accounting for 55.8%. So the majority of employees surveyed do not fully believe that they really feel a "part of the family" attachment to the company. They also did not agree that staying and working with the company was necessary as I wanted. Many opinions, said that, even though there are favorable conditions, they still feel that leaving the company at this time is not right because the total number of options from normal to completely disagree is more than 60 % of total choices. Thus, the elements of the commitment model need to be noted in the causes section and appropriate solutions should be provided.

### 4.3. Solutions to reduce the unemployment rate at Vietnamese insurance companies

*First, build a corporate culture*

Corporate culture is a factor that creates a strong, long-term bond between members of the company. In a context where it is impossible to apply extreme regulations to address unfair recruitment practices, insurance companies need to calculate and devise their own strategies to attract and retain employees talent. Strong insurance companies can retain employees in many ways such as building a working culture at the business. Although income is important, it is only a part of creating attachment. Besides the fact that businesses must have good products and services so that employees can easily sell them to customers, another very important factor is the company culture. Because each individual, in addition to the company's general goals, has their own goals and motivations. Therefore, to reconcile individual and collective interests, insurance businesses need to have a systematic process of building links between employees and the company.

*Second, focus on building and implementing serious recruitment policies*

At some large insurance companies, recruitment is too massive, increasing training costs but the quality of employees is still not high and businesses have to pay the price for this. Even at most insurance businesses, entry requirements only require a high school degree, without having gone through any professional environment, negatively affecting the business operations of the business. Among the employees, there are many new insurance graduates with a low level of attachment to the company. Many young employees are willing to leave to receive a higher salary and are less interested in other benefits such as employee benefits. Learning and development opportunities, remuneration regime. There are insurance students who choose insurance jobs to solve their immediate need for a job. To manage employee activities well and prevent and handle violations, insurance businesses must do a good job of selecting employees. Because the quality of employee selection will directly affect the quality of employee training and the quality of future exploitation of employees. Regarding the recruitment stage, insurance businesses have a lot of experience and lessons in the past, so not only do they aim to develop scale, but the quality of recruitment is always given top priority.



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Businesses need to have a strictly implemented recruitment process, with standards that ensure the provisions of the law as well as the business's orientation and regulations, to ensure compliance by branches.

*Third, create a working environment of mutuality and support*

As a result of discussions with employees participating in the survey, we found that there is a difference in intention to quit work between men and women. Women are bound by housework and caring for their children more than men. The time and dedication devoted to work are affected, causing women to not be valued in many businesses. This is also an important suggestion in our solution proposal to bring high feasibility. To reduce this difference, insurance businesses need to have policies to support and motivate individual female employees for women. There are many reasons for low levels of company engagement, but an important one is the growing gap between the desires of employees and those of insurance businesses. General information from the 2011 Asia-Pacific Human Resources Performance Survey by Pricewaterhouse Coopers Saratoga (PwC) shows that the salary philosophy and compensation structure to retain talent is increasingly changing. A high base salary may attract new employees, but it may not retain them and may not be in the best interest. The high basic salary only stops attracting talent. The deciding factor for whether or not talented people will stay long-term with a business depends largely on the increased benefits for employees. According to some surveys on human resources in the Vietnamese market, Vietnamese businesses are facing similar problems in human resource management. The survey shows that 75% of companies in Vietnam want to develop their workforce by 20% in the coming years, but face frequent changes in personnel, especially the workforce of The young generation accounts for over 50% of the Vietnamese workforce. Many insurance businesses still lack long-term strategies in employee management, including appropriate additional compensation policies such as health care and accident insurance for employees and their family members they have a particularly important role.

### 5. CONCLUSION

Using appropriate analysis methods and a sample size that ensures the research goal of 240 samples, we have collected opinions on three commitment factors from employees working in Vietnamese insurance enterprises. Through analysis and evaluation, we see that the factor of commitment to the organization is not highly appreciated. Employees working in insurance businesses have a high turnover rate. Employees choose to work at insurance companies as a temporary job when there are no other opportunities. This reason has caused Vietnam's insurance businesses to develop unsustainably, losing training and recruitment costs every year and losing revenue when employees leave their jobs. From these situations, we have come up with a number of solutions to retain employees and increase commitment to the organization.

### REFERENCES

- 1) Becker Howard S (1960), Notes on the concept of commitment, American journal of Sociology, No. 66(1), Pages: 32-40.
- 2) Becker, H. S. (1960). "Notes on the Concept of Commitment". American Journal of Sociology. 66 (1): 32–40. doi:10.1086/222820. JSTOR 2773219. S2CID 46159417.
- 3) Diem, N. V., & Quan, N. N., (2007). Human Resource Management Textbook, Hanoi National Economics University Publishing House
- 4) Dung, T. K., (2015, 9th edition). Human Resource Management, Ho Chi Minh City General Publishing House
- 5) Hrebiniak, L.G. & Alutto, J.A. (1972) Personal and Role-Related Factors in the Development of Organizational Commitment. Administrative Science Quarterly, 17, 555-573.
- 6) <https://doi.org/10.2307/2393833>
- 7) Kanter, R. M. (1968). "Commitment and Social Organization: A Study of Commitment Mechanisms in Utopian Communities". American Sociological Review. 33 (4): 499–517. doi:10.2307/2092438. JSTOR 2092438.
- 8) Kanter, R. M., (1968). Commitment and Social Organization: A Study of Commitment Mechanisms in Utopian Communities. American Sociological Review, Vol. 33, No. 4 (Aug. 1968), pp.499-517 (19 pages) <https://doi.org/10.2307/2092438>. Published By: American Sociological Association
- 9) Mercurio, Zachary A. (2015-12-01). "Affective Commitment as a Core Essence of Organizational Commitment An Integrative Literature Review". Human Resource Development Review. 14 (4): 389–414. doi:10.1177/1534484315603612. ISSN 1534-4843. S2CID 142941516.
- 10) Mercurio, Zachary A. (2015-12-01). "Affective Commitment as a Core Essence of Organizational Commitment An Integrative Literature Review". Human Resource Development Review. 14 (4): 389–414. doi:10.1177/1534484315603612. ISSN 1534-4843. S2CID 142941516.

## The Influence of the Three-Component Commitment Model on the Intention to Leave of Employees Working in Insurance Enterprises

- 11) Meyer, J. P.; Allen, N. J. (1991). "A three-component conceptualization of organizational commitment". *Human Resource Management Review*. 1: 61–89. doi:10.1016/1053-4822(91)90011-Z.
- 12) Meyer, J. P.; Allen, N. J. (1991). "A three-component conceptualization of organizational commitment". *Human Resource Management Review*. 1: 61–89. doi:10.1016/1053-4822(91)90011-Z.
- 13) Meyer, J. P.; Allen, N. J. (1991). "A three-component conceptualization of organizational commitment". *Human Resource Management Review*. 1: 61–89. doi:10.1016/1053-4822(91)90011-Z.
- 14) Mowday, Richard T; Porter, Lyman W; Steers, Richard M (1982). *Employee-organization linkages: The psychology of commitment, absenteeism, and turnover*. New York: Academic Press. ISBN 978-0-12-509370-
- 15) Wiener, Y. (1982). "Commitment in Organizations: A Normative View". *Academy of Management Review*. 7 (3): 418–428. doi:10.5465/AMR.1982.4285349.



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## **Perceived Impact of the National Service Training Program (NSTP-LTS) on the Behavioral Formation of First-Year Education Students of Pamantasan Ng Cabuyao**



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**ABSTRACT:** The study aimed to determine the perceived impact of National Service Training Program (NSTP-LTS) on the behavioral formation of the first-year education students of Pamantasan ng Cabuyao. This study employed a descriptive research design method using questionnaires as its principal tool. The study's respondents were the 231 first-year education students of Pamantasan ng Cabuyao enrolled in the Academic Year 2022-2023. Data were treated statistically using weighted mean and Pearson r. The study's findings suggest that NSTP-LTS significantly impacts education students regarding self-improvement, performance, and community involvement. Furthermore, the student's level of behavioral formation is much observed. A significant relationship was noted in the perceived impact of National Service Training Program – LTS on the behavioral appearance of the students. It was therefore concluded that the higher the perceived impact of the students on NSTP-LTS, the more behavioral formation of the students is observed. The NSTP Coordinator and instructors should implement activities promoting experiential learning to increase student community involvement.

**KEYWORDS:** National Training Service Program, Literacy Training Service, perceived impact, behavioral formation

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### **INTRODUCTION**

All college students pursuing bachelor's degrees or two-year technical vocational programs must complete the National Service Training Program. After significant statewide protests in 2001 requesting the elimination of the ROTC due to its horrible mismanagement and the harsh bullying culture of its commanders that resulted in fatalities among its cadet corps, it was proposed as a Congressional action. By making ROTC optional and voluntary and by offering two alternative programs (CWTS and LTS), from which college students may freely choose to join and receive training, the NSTP reformed the defunct RA 7077 (AFP Reservist Act), which had made ROTC necessary. The National Service Training Program (NSTP) in the Philippines incorporates community service into the curriculum to strengthen students' civic and societal responsibilities. The NSTP supports the values of service and patriotism when engaging in any of its three program components to enhance young people's civic consciousness and defense training.

Only the Literacy Training Service (sometimes abbreviated as LTS) of the National Service Preparation Program focuses on training students to teach reading, writing, and numeracy skills to children, out-of-school youth, and other groups or sectors of society. Reaching out to the less fortunate groups or sections of the population, especially those who cannot afford a formal education, is one of the primary efforts made to enable students to participate in the construction of their nation and public service. For students who want to learn not just about teaching but also about life in general, it is an unmatched experience. The primary target group for this component is students enrolling in teacher education programs. This element is an excellent way to develop and nurture the traits of responsibility and patriotism that the Filipino people must possess to help their nation advance and change for the better.

This study helped determine whether the university's service training programs influenced College of Education students to become more capable, inventive, and socially engaged citizens. The study also assisted the instructors, particularly those instructing NSTP LTS, in enhancing the experiential nature of the student's learning and ensuring its long-term retention.

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## METHODS

The researcher adopted the descriptive-correlational research design, the most influential research model used for this investigation. The research design determined the perceived impact of the National Service Training Program (NSTP-LTS) on the behavioral formation of the first-year education students of Pamantasan ng Cabuyao. Correlational research investigates relationships between variables without the researcher controlling or manipulating them (Bhandari, 2022). One of the types of correlational study is descriptive. A descriptive design emphasizes an explanation of the relationships between and among variables (Seeram, 2019).

The study's respondents were first-year education students of Pamantasan ng Cabuyao. The sample size was taken using Raosoft's Formula, and a random sampling technique was used to get the sample population. From the total of 473 education students enrolled in NSTP-LTS, there were 231 student respondents for this study. The respondents are enrolled in Pamantasan ng Cabuyao for the Academic Year 2022-2023.

The researcher utilized a survey-type questionnaire adapted from Balmeo et al. (2015) as the primary tool for gathering data needed for the study. But for this study, the researchers changed the verbal interpretations aligned to the variables used. The research questionnaire was composed of validated questions, which attempted to determine the perceived impact of the National Service Training Program (NSTP-LTS) on the behavioral formation of the first-year education students of Pamantasan ng Cabuyao. The questionnaire was divided into two parts. The first part of the questionnaire was about the perceived impact of the students on the National Training Service Program (NSTP-LTS) in terms of self-improvement, the performance of the students, and community involvement. The second part focused on the level of behavioral formation of first-year education students in Pamantasan ng Cabuyao. Since the questionnaire was self-made and subjected to face and content validity, it was shown to the panel of experts for their comments and suggestions. After some modifications and finalization, it was distributed to the target respondents.

The results of the study were acquired using a survey questionnaire. The questions were typed on Google Forms, and the digital questionnaire was circulated online. A letter of request was forwarded to the Office of the Vice President for Academic Affairs, asking for authorization to conduct the study. The survey was designed by writing down the relevant questions and measures to ensure the respondents would answer accordingly, based on the factors supplied. It was composed of thirty-eight (38) questions, which evaluated the perceived impact of the National Service Training Program (NSTP-LTS) on the behavioral formation of the first-year education students of Pamantasan ng Cabuyao. The Likert Scale was implemented to rate the independent and dependent variables of the respondents by making them place a checkmark on one of the scale measures for each question. The choices for the perceived impact of the students on the National Training Service Program (NSTP-LTS) in terms of self-improvement, the performance of the students, and community involvement were given scores as follows: 1 (Strongly Disagree); 2 (Disagree); 3 (Agree); and 4 (Strongly Agree). The choices for the level of behavioral formation of the first-year education students in Pamantasan ng Cabuyao were given scores as follows: 1 (Strongly Disagree); 2 (Disagree); 3 (Agree); and 4 (Strongly Agree). All participants were appropriately informed and voluntarily agreed to the terms with full consent before participating in the experiment. The questionnaires were allocated after the respondents answered and had them tallied, tabulated, analyzed, and interpreted.

Weighted mean and Pearson  $r$  were the statistical tools used to treat the data. Weighted mean was used in determining the perceived impact of the students on the National Training Service Program (NSTP-LTS) in terms of self-improvement, the performance of the students, community involvement, and the level of behavioral formation of the first-year education students in Pamantasan ng Cabuyao. For the perceived impact, the computed numerical values were given interpretations: 1.00-1.75 (Very Negative), 1.76-2.50 (Negative), 2.56-3.25 (Positive), and 3.26-4.00 (Very Positive). For the level of behavioral formation, the computed numerical values were given interpretations: 1.00-1.75 (Not Observed); 1.76-2.50 (Slightly Observed), 2.56-3.25 (Observed), and 3.26-4.00 (Much Observed). Pearson  $r$  was used to assess if there was a significant association between the perceived impact of the National Service Training Program (LTS) in the behavioral formation of the students.

## RESULTS AND DISCUSSIONS

**Table 1. Assessment on the Perceived Impact of NSTP-LTS to the Behavioral Formation of the First-Year Education Students in Terms of Self Improvement**

Indicative Statement	Mean	Verbal Interpretation
I learned more about leadership.	3.45	Very High
I developed myself professionally.	3.40	Very High

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I improved my academic performance.	3.30	Very High
I enhanced my chances for academic promotion.	3.37	Very High
I connected with other students and communities.	3.50	Very High
I improved my self-confidence.	3.39	Very High
<b>Grand Mean</b>	<b>3.40</b>	<b>Very High</b>

Legend: 1.00-1.75 Very Low; 1.76-2.50 Low, 2.51-3.25 High, 3.26-4.00 Very High

Table 1 presents the perceived impact of NSTP-LTS on the behavioral formation of first-year education students in terms of self-improvement. An average of 3.40 weighted mean revealed that the perceived impact of self-improvement is very high. The result implies that first-year education students gained more connections with other students and the communities and eventually learned more about leadership. The result supports the study of Saban (2020) that the NSTP completers had a high sense of civic responsibility in terms of connection to the community and civic awareness.

**Table 2. Assessment on the Perceived Impact of NSTP-LTS to the Behavioral Formation of the First-Year Education Students in Terms of Performance**

Indicative Statement	Mean	Verbal Interpretation
I was able to perform community service better.	3.36	Very High
My career advanced after completing the course.	3.39	Very High
I was motivated to serve marginalized population.	3.36	Very High
I became more committed to services in the community.	3.42	Very High
My understanding of leadership and community development increased.	3.43	Very High
I gained a network for leadership and community service information and assistance.	3.38	Very High
<b>Grand Mean</b>	<b>3.39</b>	<b>Very High</b>

Legend: 1.00-1.75 Very Low; 1.76-2.50 Low, 2.51-3.25 High, 3.26-4.00 Very High

Table 2 presents the perceived impact of NSTP-LTS on the behavioral formation of first-year education students in terms of performance. An average of 3.39 weighted mean revealed that the level of perceived impact in terms of performance is very high. The result implies that first-year education students' understanding of leadership and community development increased, leading to more commitment to the services in the community. The result supports the study of Pacatang & Montallana (2022) on enhancing fundamental leadership skills, emphasizing the ability to listen and communicate, which was seen as quite significant and greatly benefited, among other training components of the program.

**Table 3. Assessment on the Level of Perceived Impact of NSTP-LTS to the Behavioral Formation of the First-Year Education Students in Terms of Community Involvement**

Indicative Statement	Mean	Verbal Interpretation
I can identify what improvements are to be made to the situation of the target group.	3.34	Very High
I can identify what changes are to be made to the target groups' actions.	3.35	Very High
I can identify what results will be needed to generate specific impact.	3.33	Very High
I can identify what activities must be done to obtain specific outputs.	3.35	Very High
I can identify what human, material, and financial resources are needed to perform the activities.	3.40	Very High
I can recognize that impacts and results have been achieved.	3.35	Very High
<b>Grand Mean</b>	<b>3.35</b>	<b>Very High</b>

Legend: 1.00-1.75 Very Low; 1.76-2.50 Low, 2.51-3.25 High, 3.26-4.00 Very High

Table 3 presents the perceived impact of NSTP-LTS on the behavioral formation of first-year education students in terms of community involvement. An average of 3.35 weighted mean revealed that the perceived impact of self-improvement is very high. The result implies that first-year education students can better identify the human, material, and financial resources needed to perform activities. The result supports the study of Crisostomo (2018) revealed how the NSTP students showed

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awareness of the importance of physical, mental, and social health and observance of proper hygiene for an overall sense of well-being.

**Table 4 Assessment on the Level of Behavioral Formation of the First-Year Education Students of Pamantasan ng Cabuyao**

Indicative Statement	Mean	Verbal Interpretation
I actively participate in literacy training service activities.	3.55	Much Observed
I attend literacy training service sessions regularly.	3.51	Much Observed
I dedicate sufficient time and effort to prepare for literacy training service activities.	3.48	Much Observed
I communicate effectively with the beneficiaries of literacy training service.	3.45	Much Observed
I feel motivated and enthusiastic about engaging in literacy training service.	3.49	Much Observed
I adapt my teaching methods to the needs and learning styles of the beneficiaries.	3.46	Much Observed
I provide constructive feedback to the beneficiaries to enhance their learning.	3.41	Much Observed
I collaborate well with other volunteers in the literacy training service program.	3.49	Much Observed
I take responsibility for my assigned tasks and fulfill them to the best of my abilities.	3.54	Much Observed
I strive to improve my own literacy skills through the training service activities.	3.49	Much Observed
I demonstrate patience and understanding when interacting with beneficiaries.	3.47	Much Observed
I actively seek feedback and suggestions from beneficiaries to enhance the training service program.	3.69	Much Observed
I incorporate innovative teaching techniques and materials to make the sessions more engaging.	3.44	Much Observed
I maintain a respectful and inclusive environment during the literacy training service sessions.	3.58	Much Observed
I promote the value and importance of literacy in the community through my involvement.	3.52	Much Observed
I show empathy and sensitivity towards the challenges faced by the beneficiaries.	3.51	Much Observed
I actively seek opportunities to share my knowledge and expertise with the beneficiaries.	3.48	Much Observed
I am committed to making a positive impact through the literacy training service.	3.48	Much Observed
I stay updated with the latest trends and practices in literacy education.	3.41	Much Observed
I reflect on my experiences in the literacy training service and identify areas for improvement.	3.46	Much Observed
<b>Grand Mean</b>	<b>3.50</b>	Much Observed

*Legend: 1.00-1.75 Not Observed; 1.76-2.50 Slightly Observed, 2.51-3.25 Observed, 3.26-4.00 Much Observed*

Table 4 presents the level of behavioral formation of first-year education students. An average of 3.50 weighted mean revealed that the first-year students' behavioral formation level is much observed. The result implies that first-year education students are open to feedback and suggestions to improve training services. The students also maintain a respectful and inclusive environment in their literacy training service. The result supports the study of Atilano et al. (2022), where their respondents greatly benefit from National Service Training Programs. Attending NSTP classes serves as a reminder of the students' social responsibilities, the necessity of community service initiatives, the ability to think critically, and their significant societal roles.

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**Table 5 Pearson-r Correlation: Comparison on Significant Relationship of the Perceived Impact of the National Service Training Program (LTS) in the Behavioral Formation of the Students**

	r-value	Correlation efficient	co-	p-value	Decision	Remarks
Self-Improvement	0.825	High correlation	Positive	< 0.001	Reject Ho	With Significant Relationship
Performance of the students	0.853	High correlation	Positive	< 0.001	Reject Ho	With Significant Relationship
Community Involvement	0.849	High correlation	Positive	< 0.001	Reject Ho	With Significant Relationship

*Legend: .00 to .30 (.00 to -.30) Negligible correlation; .30 to .50 (-.30 to -.50) Low positive (negative) correlation; .50 to .70 (-.50 to -.70), Moderate positive (negative) correlation; .70 to .90 (-.70 to -.90) High positive (negative) correlation; .90 – 1.00 (-.90 – 1.00) Very high positive (negative) correlation*

*Note: If p-value is less than or equal to (0.05) reject Ho, otherwise Failed to reject Ho*

Table 5 presents the Pearson-r correlation of the comparison on a significant relationship of the perceived impact of the NSTP-LTS in the behavioral formation of the students. As observed, the obtained probability value of 0.000 for all sub-variables was less than the 0.001 significance level; therefore, a significant relationship was noted in the perceived impact of the National Service Training Program – LTS in the behavioral formation of the students. The result implies that the more positive the perceived impact of the students on NSTP–LTS, the more behavioral formation of the students is observed. This correlation is further proven in the study Custodio (as cited in Adarlo, 2019), which stated that comparing volunteerism levels before and after taking the NSTP courses revealed improvements. The program's subjects may help students acquire perspective and empathy. The study by Guiuan (2017), which cited the National Service Training Program (NSTP) as the only mandatory Service-Learning course in the Philippines, exposes graduates to updated industry demands. The study of Latib, Saud, & Kamin (2017) further showed that service learning aided in developing students' skills and enhanced perceptions of universities as agents of social change.

### CONCLUSIONS

The study aimed to determine the perceived impact of the National Service Training Program (NSTP-LTS) in terms of self-improvement, the performance of the students, community involvement, and the level of behavioral formation of the first-year education students of Pamantasan ng Cabuyao. Given the study's findings, the researcher concluded that first-year education students gained more connections with other students and the communities and eventually learned more about leadership. The level of students' understanding of leadership and community development increased, leading to more commitment to the services in the community. In addition, the students can better identify the human, material, and financial resources needed to perform activities. The first-year education students are open to feedback and suggestions to improve training services. The students also maintain a respectful and inclusive environment in their literacy training service. Lastly, the higher the perceived impact of the students on NSTP–LTS, the more behavioral formation of the students is observed.

### FUTURE DIRECTIONS

Based on the summary of findings and the conclusions drawn, the following recommendations were offered. First, the students should improve their academic performance through active participation and involvement in the programs or activities of the NSTP-LTS. The NSTP Coordinator should thoroughly check the outcomes-based learning plan of the instructors to check if the actions are correctly executed. The NSTP instructors should implement activities promoting experiential learning to increase student community involvement. Lastly, the university officials should allocate a budget to fund the initiatives of NSTP-LTS to implement their activities properly.

### REFERENCES

- 1) Atillano, J. N., Cuizon, P. C., Gavina, R. A., Solis, M. D., & Copia, C. R. (2022). Influence of national service training program in the lives of Dominican students. *SDCA Asia-Pacific Multidisciplinary Research Journal*, 4(1), 1-4.

## Perceived Impact of the National Service Training Program (NSTP-LTS) on the Behavioral Formation of First-Year Education Students of Pamantasan Ng Cabuyao

- 2) Dunn, J. (2018). The impact of community service in the classroom setting: A research study (Honors thesis, Assumption College).
- 3) Pacatang, D. H. Q., & Montallana, O. (2022). Effectiveness of national service training program in the behavioral formation of the students.
- 4) Saban, M. V. E., & Saban, G. A. S. (2020). Sense of Civic Responsibility of National Service
- 5) Training Program Completers and Non-Completers in a University Setting in the Philippines. In *International Forum Journal* (Vol. 23, No. 2, pp. 163-177).
- 6) Lopez, E. L. F. (2019). Application of the literacy training service component of the National Service Training Program in New Bilibid Prison (Philippines). *International Review of Education*, 65, 755-784.
- 7) Crisostomo, L. C. (2018). Benefits and Difficulties of the National Service Training Program in Rizal Technological University. *KnE Social Sciences*, 829-846.
- 8) Latib, A. A., Amin, N. F., Saud, M. S., & Kamin, Y. (2017). Impact of a service learning program to the university and the community. *Advanced Science Letters*, 23(1), 596-599.
- 9) Landong, J. N. (2018). Practices and implementation of national service program (NSTP): Basis for program development in developing nationalism and volunteerism. *LCC Student Research Journal*, 2(1), 1-1.
- 10) Abenir, M. A. D. (2019). The Social Impact of the Service-Learning Components of the National Service Training Program in the Philippines-The Case of the University of
- 11) Santo Tomas. 7th Asia-Pacific Regional Conference on Service. *Learning*, 1-6.
- 12) Balmeo, M. L., Falinchao, J. P., Biay, K. K. L., Ebes, J. K. M., Eclarino, J. G., & Lao-ang, I. G.
- 13) P. (2015). The Effects of NSTP on the Lives of Saint Louis University Students. *IAFOR Journal of Education*, 3(1), 77-91.



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## Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

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**ABSTRACT:** The tourism of Bali was hit by the Covid-19 pandemic. The cessation of tourism activities has an impact on weakening the competence of trained tourism human resources, which has led to a decrease in competitiveness. As a result, it is difficult for Bali's tourism industry to restart its activities immediately. The situation is not only detrimental to the tourism industry in Bali, but also has a negative impact on the resilience of Indonesian tourism as a whole. The main goal of Bali's economic recovery program is to prepare its economy so that its growth can accelerate at the end of the Covid-19 pandemic and return to its pre-pandemic level by 2024. The recovery of the tourism sector also means the recovery of Bali's economy. Although not yet optimal, tourism actors at the moment must prepare themselves to capture the momentum of tourism opening and global tourism trends, including new normal conditions, so that Bali can compete with other tourism destinations in the world. Therefore, a strategy is needed to improve the resilience of tourism actors from the supply side towards the transformation of Bali's economy which is targeted to create higher economic growth in the long term at 7.7 percent by 2045.

**KEYWORDS:** Economy, Tourism, Transformation

### I. INTRODUCTION

When viewing based on data in the last 6 years, Indonesia's economic growth is supported by the oil and gas, coal, crude palm oil, tourism, and apparel sectors. At present, tourism is a growing sector that has become a leading sector of national development in reducing poverty, unemployment, and also inequality due to the multiplier effect for the country and society. Indonesia's tourism is one of the largest and fastest-growing economic sectors, and tourism is said to be the country's core economy in the future because it is a highly sustainable commodity that touches various levels of society in Indonesia. Every year, Indonesia's tourism foreign exchange earnings increase while several other commodities such as oil and gas, coal, and CPO continue to decline. The development of Indonesia's foreign exchange earnings from the tourism sector in 2015-2020 is presented in Table 1.

**Table 1. The development of Indonesia's Foreign Exchange Earnings from Tourism Sector in 2015-2020**

No	Year	Foreign Exchange (Billion US \$)	Development (%)
1	2015	10.7	-
2	2016	11.2	4.67
3	2017	13.1	16.9
4	2018	16.4	25.1
5	2019	16.9	3.04
6	2020	3.2	-81.8

**Source:** (Bank Indonesia, 2021)

The role of the national tourism sector is becoming increasingly crucial along with the development and contribution that the sector provides through foreign exchange earnings, regional income, regional development, as well as in the absorption of investment and labor and business development spread in various corners of Indonesia. Contribution of the tourism sector to the national Gross Domestic Product (GDP) in 2014 has reached 9 percent or IDR 946.09 trillion (Kemenparekraf, 2016). Meanwhile, foreign exchange from the tourism sector in 2014 has reached IDR 120 trillion and the contribution to employment opportunities is as many as 11 million people (Anggraini & Riyanto, 2017).

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Development in the tourism sector is one of the innovations to accelerate the state and regional revenues (Hamsal & Abdinagoro, 2021). Bali Province is becoming an integral part of the Unitary State of the Republic of Indonesia which is also one of the world's most famous international tourist destinations. The tourism sector has been the driving force of the economy and development in Bali since the 1970s. Looking at the competitive advantages of Bali's regional economic structure, the tourism sector as a locomotive driving the Balinese economy which has a dazzling natural panorama, art, culture, traditions, customs, hospitality and unique characteristics, has resulted in the tertiary economic community becoming more dominant when compared to other economic sectors. The tourism sector contributes the most to economic growth (Sanjaya, Dewi, Martini, & Dewi, 2018).

However, behind the significant development, Bali tourism is faced with a complex global market situation, especially due to shifts in tourist market orientation (Urmila, 2013). In the last two decades, a shift has occurred in the orientation of tourist travel. Tourist orientation no longer focuses on conventional tourism products that offer recreational activities because it has now shifted to special products that emphasize elements of experience, uniqueness, authenticity and respect for the environment and local culture. This trend has implications for the increasing interest of tourists to visit areas that offer tourist attractions in the regions, especially rural areas. A survey conducted by the Countryside Commission found that 84 percent of UK residents went on holiday and took vacation in rural areas each year, 25 percent of French local residents went on holiday and took vacation in suburban areas and 17 percent went on holiday and took vacation in mountainous areas.

Bali Province is still a destination for tourist visits to date, both foreign tourists and domestic tourists. Potential of Bali's tourism are quite diverse, supported by the many natural tourism destinations, cultural tourism, culinary tourism, historical tourism, and religious tourism (I. N. M. Yasa, 2015). In addition, there are several other factors that become additional reasons for tourists to choose Bali as a destination for tourism visits, such as comfortability and safety, the quite affordable cost of living and price of souvenirs, as well as the environment and local culture that is still thick and rooted in the lives of Balinese people.

Bali's economy experienced the deepest contraction among other provinces in Indonesia. In 2020, the area contracted by 9.3 percent, the deepest among other provinces in Indonesia. Before Covid-19 hit, Bali's average economic growth was 6.3 percent, higher than the national average growth of only 5.3 percent. After Covid-19, Bali's economy experienced negative economic growth since the first quarter of 2020. The policy of limiting activities in various countries which began at the end of 2019 caused an economic contraction. Even up to the first quarter of 2021, Bali's economic growth is still experiencing a contraction. In the second quarter of 2021, Bali began to record positive growth, but recovery was still limited when compared to that in other provinces in Indonesia (Badan Pusat Statistik, 2022).

The tourism of Bali has been hit by the Covid-19 pandemic. The pandemic has caused the number of foreign tourists to decline drastically. The decline reached 82.96 percent in 2020 compared to the condition the previous year. In 2019, before the pandemic emerged, Bali accounted for almost 40 percent of total foreign tourists visiting Indonesia. The number of tourists visiting Bali has increased every year, with visits reaching around 6.3 million in 2019. Given the high dependence on foreign tourists, Bali is the region whose economy is most affected by the Covid-19 pandemic. The cessation of tourism activities has an impact on weakening the competence of trained tourism human resources, which leads to a decrease in competitiveness. Consequently, it is difficult for Bali's tourism industry to restart its activities quickly. This situation is not only detrimental to the tourism industry in Bali, but also has a negative impact on the competitiveness of Indonesian tourism as a whole.

The condition of Bali's economy as described above urges a study that substantially examines the models or strategies to strengthen the resilience of businesses engaged in the tourism sector, especially from the supply side, to realize the transformation for the economy of Bali, which is formulated into several major problems, among others: 1) how is the resilience of tourism businesses in Bali in terms of supply? 2) What is the most effective economic transformation for Bali? and 3) What are the strategies to transform the Balinese economy?

## **II. REVIEW OF LITERATURE**

### **Economic Transformation**

In essence, economic development comprises four main dimensions, namely: (1) growth, (2) poverty reduction, (3) economic change or transformation, and (4) sustainability of development from an agrarian society to an industrial society. Structural transformation is an important indicator of the increase and sustainability of growth and poverty reduction, as well as a support for the sustainability of development itself. The process of changes in the structure of the economy is characterized by several elements, such as: (1) the decline in the share of the primary sector (agriculture), (2) the increase in the share of the secondary sector (industry), and (3) the share of the tertiary sector (service) which also contributes to an increase in line with economic growth.

# Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

## Tourism Supply

Tourism supply includes everything that is offered to tourists both actual and potential tourists. The supply in tourism shows natural and artificial tourist attractions, services and goods that are expected to attract people to visit a particular tourist attraction in a country (Eidin Abdel Wahab, 1975).

## Tourism and Sustainable Development

### Tourism

Tourism is the activity of a person traveling to or staying in a place outside the usual environment for no more than one year continuously to get pleasure, do business or other purposes. On the other hand, (Liu, 2021) suggests that tourism activities are activities that bring together humans with a situation outside their environment and can cause a sense of awe, feel comfort and can even pose a challenge to themselves. The situation in question can take the form of natural, cultural and special conditions, both as objects and attractions (Bing & Ji-gang, 2012).

Tourism concerns about objects and attractions, their development, preservation and human excellence in the development, utilization, and preservation of tourism objects and tourist attractions. Services to tourists in facilitating the fulfillment of their interests and developing a supportive atmosphere will always intersect with other fields, or in other words, tourism activities are essentially an effort to utilize objects and tourist attractions that are tangible in, among other things, natural beauty, diversity of flora and fauna, diversity of traditions and culture, as well as historical and ancient heritage.

Tourism activities constitute activities that prioritize services oriented towards the satisfaction of tourists, entrepreneurs in the tourism sector, government and society (Adi, Utama, Budhi, & Purbadharmaja, 2017). As one of the physical and psychological activities of humans, tourism is defined by many experts with almost the same definition (Sharpley & Harrison, 2017).

### Sustainable Development

Sustainable development aims to improve the welfare of society in order to fulfill human needs and aspirations. Sustainable development is essentially aimed at seeking equitable development between present and future generations (Salim, 1990).

According to the Indonesian Ministry of Environment (1990), the sustainability of development (which is basically more economically oriented) can be measured based on three criteria, namely: 1) no depletion of natural resources; 2) no pollution and other environmental impacts; 3) the activities must be able to increase useable resources or replaceable resources.

In line with the concept, (Gantait, Swamy, & Mathew, 2019) argues that the objectives of sustainable development include efforts to realize equitable distribution of the benefits of intergenerational development results (intergeneration equity), safe guarding or securing the preservability of existing natural resources and the environment and preventing ecosystem disturbances, utilization and management of natural resources that is solely for the sake of pursuing economic growth in the interests of equitable utilization of sustainable natural resources between generations, maintenance of the welfare of the people (community), maintenance of the benefits of development or management of natural resources and the environment that have long-term beneficial impacts, and maintenance of the quality of human life between generations in accordance with their habitats (Mowforth & Munt, 2015).

From an economic perspective, (Fauzi, 2004) argues that there are at least three main factors why economic development should be sustainable. These factors are 1) moral reasons, which include not extracting natural resources that can damage the environment, which can deprive future generations of the opportunity to enjoy the same services; 2) ecological reasons, namely that economic activities can threaten ecological functions and; 3) economic reasons, which concern whether economic activities have or have not met the criteria for sustainability (Lickorish, L.J., Jefferson, A., Bodlender, J., & Jenkins, 1994).

### The Role of Government in Tourism Development

According to (Nguyen, Diane, & Newsome, 2020), the role of government in tourism includes a) planning, b) development, c) policy, and d) regulation. In line with that, (González Fonseca, 2011) suggest that the role of government in tourism development includes a) the role of government in regulation, which means that with regulation, tourism-related activities will run orderly and smoothly; b) the role of government in providing facilities and infrastructure, which emphasizes that with good facilities and infrastructure, tourists will be attracted to visiting tourist attractions; c) the role of government in planning, meaning that planning is made so that tourism activities are in accordance with what is expected; and d) the role of government in supervising, which means that good supervision will lead to effective and efficient tourism activities (Lee, 2020).

### The Role of Private Sector in Tourism Development

The role of the private sector in developing the tourism sector is also quite massive and is the key to the success of tourism construction and development itself (Boy, Djinar, Urmila, & Marhaeni, 2019). The role of the private sector in tourism is to implement policies for the contribution of experts, infrastructure development, and technology. The freedom of the role of the

## **Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation**

private sector as tourism business management must of course be opened as widely as possible so that their creativity in managing the tourism industry can be well honed. The private sector as the owner of capital certainly plays a very crucial role in creating new motivations in the tourism industry and unique changes in the tourism business so that the business they manage is profitable.

### **The Role of Community Participation in Tourism Development**

Community participation is the key to success in developing a tourism village. This is because the community is the party that understands more about the potential and problems of the village. The community is the party that will directly feel the impact of the existence of a tourism village, such as the opening of new jobs that can increase community income. The increase in income will in turn encourage an increase in community welfare.

(Nguyen et al., 2020), state that information disclosure and access to good education for stakeholders is necessary so that the process of community participation in developing countries can be bottom-up. Community participation is the key to success in developing tourism villages (ROSLIANA, 2017). (Chambers, 2014) community participation is a process in which tourism is utilized as a tool in community development, starting from the active participation of local communities in building the capacity of their communities when managing tourism, so the government sector and the private sector can interact directly with the community in the tourism development process.

Research conducted by (Bjärstig & Sandström, 2017) revealed that encouragement and motivation from stakeholders to the local communities as well as improving coaching and training to be able to participate is still needed. (Anuar, Ridzuan, Jaini, Sulaiman, & Hashim, 2019) also found that the response of communities that were not involved in playing their role in tourism was more likely to give a negative reaction to tourism development. Research conducted by (Xu, Jiang, Wall, & Wang, 2019) found that community participation was still lacking and it is caused by the dominance of the government and the private sector, as well as the existence of rules that limit the active involvement of the community.

### **III. METHOD**

This type of research is regional macroeconomic qualitative research, the data and analysis are aggregate. The nature of the research is a documentation study, which is a study that studies and explores Bali's regional macro data and information sourced from documents or secondary data sources spread across various government agencies.

Location of the research is Bali Province, which was chosen based on several considerations. These considerations include: (1) before Covid-19 hit Bali, the average economic growth of the region was 6.3 percent, higher than the average growth of the national economy which was only 5.3 percent. After Covid-19 hit, the Bali experienced negative economic growth since the first quarter of 2020. The policy of limiting activities in various countries since the end of 2019 has caused economic contraction, and as a consequence, even until the first quarter of 2021 Bali's economic growth is still contracting. In the second quarter of 2021, Bali began to record positive growth, but recovery activities are still limited when compared to that in other provinces in Indonesia, (2) Bali's economy is remarkable compared to that of other provinces, which in fact Bali is heavily dependent on the tourism sector and connectivity needs to be built by exploring other tourism-related potential sectors, (3) real effective strategies to accelerate the Bali's economy which is severely affected by the Covid-19 pandemic have not been found and (4) the study is conducted to help accelerate the vision and mission of the Provincial Government, the so-called Nangun Sat Kerthi Loka Bali through the Planned Universal Development Pattern towards a New Era Bali.

The data collected for this study are Bali regional macro secondary data, sourced from several Indonesian government agencies. These agencies are Ministry of National Development Planning, Central Bureau of Statistics, and other relevant technical offices within the regional apparatus organizations of the Bali Provincial government.

Data for this study were collected using two methods. These methods are (1) documentation study, a method used to study documents and annual reports spread across various agencies of regional apparatus organizations (OPD) of the Bali Provincial government, (2) observation, an activity conducted to observe situations or activities related to the tourism business sector in the field.

The data for this study were analyzed using the descriptive-qualitative method, a method that provides a qualitative or narrative description of the quantitative and qualitative data obtained, so as to provide meaning or interpretation of real data and information to answer the problems under this study.

**IV. RESULT AND DISCUSSION**

**A. Resilience of Bali's Tourism Actors**

Bali is still heavily dependent on tourism as the sector has a large contribution to the Gross Regional Domestic Product (GRDP). Unfortunately, the province is highly vulnerable to various security-related turmoil, natural and non-natural disasters. Bali has experienced security disturbances (Bali Bombing I, Bali Bombing II), natural disasters (Mount Agung eruption), and non-natural disasters (SARS Virus, Bird Flu, and Covid-19 Pandemic).

These various events have a direct impact on tourism, including the Bali's economy. Among such events, the emergence of the Covid-19 pandemic that hit the whole world and lasted for almost 2 years paralyzed Bali tourism. Tourism business actors have certainly been the hardest hit by the pandemic. Many of the workers were laid off and their employment was terminated, and many of the products offered to tourists did not sell. Of course, this situation has implications for income and welfare levels, which all lead to the aggregate economy of Bali.

The economy of Bali contracted in almost all sectors during 2020 and contracted again in the third quarter of 2021. The main sectors in Bali recorded negative growth again in the third quarter of 2021 (BPS, 2022). Limited mobility led to a decline in the performance of the transportation and warehousing sector and the provision of accommodation and food and beverage. The lack of transportation and storage sector is in line with the decline in vehicle and passenger volumes at Gilimanuk and Padangbai crossings, which amounted to 32.7 percent year on year (yoy) and 16.7 percent (yoy), respectively.

The Covid-19 pandemic has hit tourism in Bali and caused the number of foreign tourists to decrease drastically by 82.96 percent in 2020 compared to 2019. Before the pandemic hit, Bali accounted for almost 40 percent of total foreign tourists visiting Indonesia. The number of foreign tourists visiting Bali increased every year, with the number of visits reaching around 6.3 million in 2019. Given the high dependence on foreign tourists, Bali is the area whose economy is most affected by the Covid-19 pandemic. The cessation of tourism activities has an impact on weakening the competence of tourism-trained Human Resources (HR), which leads to a decrease in competitiveness. In the end, it is difficult for Bali's tourism industry to restart its activities quickly. This is not only detrimental to the tourism industry in Bali, but also has a negative impact on the competitiveness of Indonesian tourism as a whole. Comparative data on the number of foreign tourist direct arrivals to Indonesia and to Bali during 2014-2020 are presented in Table 2.

**Table 2 Tourist Visit to Bali Province**

Year	Foreign Coming to Indonesia (person)	Tourists to Bali (person)	Foreign Coming Directly to Bali (person)	Bali's Contribution to Indonesia (%)	Tourist to Bali (%)	Bali's Foreign Growth (%)
2014	9.435.411	3.766.638	3.766.638	39,92	11,16	
2015	10.406.291	4.001.835	4.001.835	38,46	6,24	
2016	11.519.799	4.927.937	4.927.937	42,78	23,14	
2017	14.039.799	5.697.739	5.697.739	40,58	15,62	
2018	15.806.191	6.070.473	6.070.473	38,41	6,54	
2019	16.106.954	6.275.210	6.275.210	38,96	3,37	
2020	4.022.505	1.069.473	1.069.473	26,59	-82,96	

Source: (Dinas Pariwisata Provinsi Bali, 2022)

**Transformation of Bali's Economy**

Tourism sector has a significant contribution to Bali's Gross Regional Domestic Product (GRDP), but the sector is highly vulnerable to various security-related upheavals, natural and non-natural disasters. Bali has experienced security disturbances such as Bali Bombing I and Bali Bombing II. Bali has experienced natural disasters (Mount Agung eruption), and non-natural disasters such as the Sars Virus, Avian Flu and this time the Covid-19 pandemic. These events have greatly impacted Bali's tourism, by causing the decline in tourists visiting the area, and having an impact on the deterioration of the economy. Among these events, the emergence of the worldwide Covid-19 pandemic has paralyzed Bali's tourism which has resulted in its economy experiencing the worst contraction in Indonesia.

In response to above experience, it is time for Bali to develop an economy that is no longer dependent on one sector, that is to say, the tourism sector. Bali must make a choice to develop an economy that is based on the originality and excellence of existing local resources, which include: Nature, Krama and Balinese Culture as potential resources in the agricultural, marine and fisheries sectors, as well as the folk craft industry (Sanjaya, 2020). On the other hand, Bali's economic development should accommodate the development of science and technology including digital technology that can be utilized to develop a creative and digital economy in accordance with the potential of Bali's Krama in an effective, efficient, productive, and value-added manner.

## Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

In developing the economy, the tourism sector must be positioned as an additional source in the economy of Bali (Bappenas, 2021). In fact, the tourism sector must act as a locomotive for the movement of the agricultural, marine and fisheries sectors, as well as the people's handicraft industry so as to significantly benefit the improvement of the welfare of Bali's Krama. In this correlation, policy directions, approaches, and principles are needed to organize and develop the Balinese economy with a structure and fundamental based on Balinese local resources that are of higher quality, added value, resilient, competitive, environmentally friendly and sustainable, which is realized by the transformation of the Bali's economy (Koster, 2021).

Bali's economic transformation is an economic development process that has a long-term impact, encompassing six major strategies and executed with various development programs, as outlined below.

- 1) *Bali Pintar and Sehat* (Smart and Healthy Bali), which is executed through the transformation of health and education development aimed at increasing the productivity of Bali's Human Resources (HR). Improving the quality of human resources is carried out by strategies to realize healthy and nutritious human resources, smart human resources with strong character and creative and innovative human resources.
- 2) *Bali Produktif* (Productive Bali), which is executed through strategies to increase middle-class labor productivity, modernize agriculture, modernize marine and fisheries, increase industrialization, strengthen the tourism sector, develop the creative economy and strengthen MSMEs and strengthen the tourism sector, Bali's labor productivity will increase by three times compared to the average productivity in 2015-2019.
- 3) *Bali Hijau* (Green Bali), which is executed through a scenario of implementing ambitious climate change mitigation and adaptation policies, so as to achieve a reduction in Green House Gases (GHG) at the Net Zero Emission level by 2060 or sooner, and employment growth in the green economy sector between 50,000 and 100,000 new jobs.
- 4) *Bali Terintegrasi* (Integrated Bali), which is executed through improving connectivity facilities and infrastructure, developing Bali as an air logistics hub, strengthening Bali-Nusra cooperation, and developing innovative infrastructure financing schemes.
- 5) *Bali Smart Island*, which is executed through strengthening digital infrastructure (100 percent coverage and quality), increasing digital skilled human resources, developing various digital public and private services and digitizing the Balinese economy, including digitizing MSME start-ups and the creative economy and developing digital tourism services.
- 6) *Bali Kondusif* (Conducive Bali), which is executed through strengthening enablers or business leverage factors from the aspects of ease of doing business, and aspects of bureaucratic reform, as well as improving governance and institutions.
- 7) The Covid-19 pandemic crisis that has been going on for more than a year has shaken Bali's tourism economy. As a leading foreign tourist destination, the economy in Bali has become sluggish since the absence of tourist visits. Bali's development performance so far is generally relatively good in terms of economic, social, political and security. However, in 2020, Bali experienced the deepest economic contraction compared to the conditions experienced by other provinces in Indonesia, that is to say, -9.31 percent. This decline continues and is even expected to remain in 2021.
- 8) The significantly declining conditions due to the Covid-19 pandemic have revealed various problems and challenges faced by Bali Province going forward. Bali's economic structure needs to be improved and reorganized to realize a Green, Resilient and Prosperous New Era Bali in various sectors.

### Strategy for Bali's Economy Transformation

Bali's economy experienced the deepest contraction among other provinces in Indonesia. The province in 2020 contracted by 9.3 percent, the deepest among other provinces in Indonesia. Before Covid-19 hit, Bali's average economic growth was 6.3 percent, higher than the average national economic growth, which was only 5.3 percent. After Covid-19 hit, Bali's economy has experienced negative economic growth since the first quarter of 2020. Activity restriction policies in various countries since the end of 2019 have caused economic contraction. Even until the first quarter of 2021, Bali's economic growth was still contracting. In the second quarter of 2021, Bali began to record positive growth, but the recovery was still limited when compared to that in other provinces in Indonesia.

Bali's economic recovery has short-term goals and targets that are expected to immediately encourage economic movement during the pandemic and immediately restore the economy when the pandemic ends (Ace, 2021). Bappenas through the Bali's Economic Transformation Road Map has proposed 3 (three) stages consisting of 6 (six) major strategies or quick wins that must be immediately implemented by all stakeholders in Bali's economic recovery efforts involved, as described below.

#### Preparation Stage

- 1) Strengthening the control of the Covid-19 pandemic and accelerating the vaccination program. The main targets are to adapt health protocols, complete vaccination of Balinese residents, and coordinate increased observation of Bali's entrances following health protocols.

## Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

- 2) Continuing efforts to protect the purchasing power of the Balinese people, especially the underprivileged community through social assistance programs and labor-intensive programs.

### Transition Stage

- 1) Continuing to provide incentives and facilities to businesses. This is implemented through credit restructuring under IDR 10 billion and financing facilities, tax incentives, import duties and export facilities, providing ease of starting a business and simplifying business licensing.
- 2) Improving Bali's image to strengthen tourist confidence. The goal is to build Bali's image as a healthy and safe tourist destination and make Bali a remote working destination.

### Recovery Stage

- 1) Stabilizing the opening of tourism and increase collaboration between parties, among others, through bilateral and multilateral cooperation, and ensure that Bali's tourism business activities can immediately resume during the end of the pandemic.
- 2) Improving non-tourism economic activities, which include infrastructure development, increasing activities in the agriculture, fisheries, and industrial sectors, and improving the quality of the workforce, supporting the creative economy sector and accelerating digital transformation in Bali.

Based on these six strategies, it is expected that the implementation of the Bali economic recovery program will have an integrated and simultaneous impact on the business actor side so that the recovery of tourist visits with an optimistic target can be achieved, that is to say, the number of tourist visits to Bali in 2024 is expected to be relatively the same as the number of visits in 2019 (before the pandemic). Along with the projection of domestic and foreign tourist visits, the economic growth of Bali Province is targeted to return to positive in 2022, and Bali's economic growth is expected to return to pre-pandemic levels in 2024 with a projected growth of 8.1 percent.

The main goal of the Bali economic recovery program is to prepare Bali's economy to accelerate at the end of the Covid-19 pandemic and return to pre-pandemic levels by 2024. Recovery of the tourism sector also constitutes recovery of Bali's economy. For this reason, tourism in the area must be able to adapt during the pandemic and be ready to face post-pandemic demand changes. Currently, although not yet optimal, tourism players must prepare themselves to capture the momentum of tourism opening and global tourism trends including new normal conditions so that Bali can compete with other tourism destinations in the world. Therefore, successful control of the spread of Covid-19 and implementation of health protocols during and after the pandemic are mandatory requirements to drive tourism.

Simultaneous empowerment from the business actor side is needed in order to be able to rise to support tourism (I. Yasa, 2020). In addition, stimulus must be given to business actors, especially those engaged in the tourism sector, to survive and be able to recover from the situation of the downturn in tourism due to the Covid-19 pandemic.

## V. CONCLUSION

### A. Conclusions

With reference to the objectives and the results of the analysis explained in the discussion section, the conclusions of this study are drawn as outlined below.

- 1) The cessation of tourism activities has an impact on the weakening of the resilience of tourism actors, which leads to a decrease in competitiveness. As a result, it is difficult for Bali's tourism industry to restart its activities quickly. It is not only detrimental to the tourism industry in Bali, but also has negative impacts on the competitiveness of Indonesian tourism as a whole.
- 2) The most effective transformation for Bali tourism is to take the option of developing an economy that derives from the originality and excellence of local resources, which include: Nature, *Krama* and Balinese Culture as potential resources in the agriculture sector in a broad sense, marine, fisheries, industry, MSMEs, cooperatives, creative and digital economies and the tourism sector for a long-term economic transformation process towards a Green, Resilient and Prosperous New Era Bali.
- 3) The strategy to make a transformation to the Balinese economy includes six major strategies and is carried out with various development programs, such as: 1) *Bali Pintar dan Sehat* (Smart and Healthy Bali), 2) *Bali Produktif* (Productive Bali), 3) *Bali Hijau* (Green Bali), 4) *Bali Terintegrasi* (Integrated Bali), 5) Bali Smart Island dan 6) *Bali Kondusif* (Conducive Bali).

### B. Recommendations

As a follow-up to the analysis, the author gives some recommendations. The Covid-19 pandemic period can be utilized as a momentum for rethinking, redesigning, and restarting Bali's tourism. The main goal of the Bali's economic recovery program is to prepare Bali's economy to accelerate at the end of the Covid-19 Pandemic and return to pre-pandemic levels by 2024. The recovery of the tourism sector also means the recovery of Bali's economy. For this reason, tourism in Bali must be able to adapt during the

## Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

pandemic and be ready to face post-pandemic demand changes while maintaining the resilience of business actors, especially those engaged in the tourism sector.

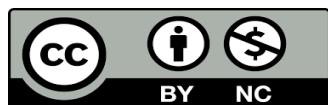
### REFERENCES

- 1) Ace, C. (2021). *Padmabhuwana Bali* (1st ed.). Denpasar Bali: CV Alif Gemilang Pressindo.
- 2) Adi, I. N. R., Utama, M. S., Budhi, M. K. S., & Purbadharmaja, I. B. P. (2017). The role of government in community based tourism and sustainable tourism development at Penglipuran Traditional Village—Bali. *IOSR J. Humanit. Soc. Sci*, 22, 15–20.
- 3) Anggraini, D., & Riyanto, R. (2017). Analisis hubungan komplementer dan kompetisi antar destinasi pariwisata (Studi kasus: 10 Destinasi pariwisata prioritas di Indonesia). *Jurnal Kebijakan Ekonomi*, 12(2), 224–252.
- 4) Anuar, A., Ridzuan, F. H., Jaini, N., Sulaiman, F., & Hashim, N. I. (2019). The impact of overtourism towards local community in heritage city. *Journal of Tourism & Hospitality*, 8(3), 1–5.
- 5) Badan Pusat Statistik. (2022). *Statistik Indonesia 2021*.
- 6) Bank Indonesia. (2021). *Statistik Keuangan Ekonomi Indonesia*. Jakarta: Bank Indonesia.
- 7) Bappenas. (2021). *Transformasi Ekonomi Bali*. Jakarta: Kementerian PPN/Bappenas.
- 8) Bing, Z., & Ji-gang, B. A. O. (2012). Institutional Empowerment: Community Participation and Changes of Land Property Rights in Tourism Development. *Tourism Tribune/Lvyou Xuekan*, 27(2).
- 9) Bjärstig, T., & Sandström, C. (2017). Public-private partnerships in a Swedish rural context-A policy tool for the authorities to achieve sustainable rural development? *Journal of Rural Studies*, 49, 58–68.
- 10) Boy, J. K. N., Djinar, S. N., Urmila, D. M. H., & Marhaeni, A. (2019). The effect of stakeholders on village community creativity and community welfare of coastal village in The Bali Province, Indonesia. *Russian Journal of Agricultural and Socio-Economic Sciences*, 93(9), 206–215.
- 11) BPS. (2022). *Badan Pusat Statistik*.
- 12) Chambers, R. (2014). *Rural development: Putting the last first*. Routledge.
- 13) Dinas Pariwisata Provinsi Bali. (2022). *Buku Statistika Pariwisata Bali*. Denpasar Bali: Denpasar.
- 14) Eidin Abdel Wahab, S. (1975). Aspects of organisation for tourism at the destination end. *The Tourist Review*, 30(2), 49–57.
- 15) Fauzi, A. (2004). *Ekonomi sumber daya alam dan lingkungan: Teori dan aplikasi*. Gramedia Pustaka Utama.
- 16) Gantait, A., Swamy, G. A., & Mathew, R. (2019). Sustainable Destination Development through Responsible Community Based Tourism Initiatives: Select Case Studies from Bali Village, Indian Sunderbans. *International Journal of Applied ...*
- 17) González Fonseca, F. (2011). Challenges and opportunities in the world of tourism from the point of view of ecotourism. *Higher Learning Research Communications*, 2(4), 1.
- 18) Hamsal, M., & Abdinagoro, S. B. (2021). *Sustainable Tourism Pariwisata Wisata di Era Normal Baru*. books.google.com.
- 19) Kemenparekraf. (2016). *Buku Saku Kementerian Pariwisata Republik Indoensia* (1st ed.). Jakarta: Kemenparekraf.
- 20) Koster, W. (2021). *Ekonomi Kerthi Bali*. Denpasar: PT Percetakan Bali.
- 21) Lee, C. K. (2020). The roles of cultural worldview and authenticity in tourists' decision-making process in a heritage tourism destination using a model of goal-directed behavior. *Journal of Destination Marketing and Management*, 18. <https://doi.org/10.1016/j.jdmm.2020.100500>
- 22) Lickorish, L.J., Jefferson, A., Bodlender, J., & Jenkins, C. L. (1994). *Developing Tourism Destinations* (1st ed.). London: : Longman Group UK Ltd.
- 23) Liu, Y. (2021). Environmentally responsible behavior of residents in tourist destinations: the mediating role of psychological ownership. *Journal of Sustainable Tourism*. <https://doi.org/10.1080/09669582.2021.1891238>
- 24) Mowforth, M., & Munt, I. (2015). *Tourism and sustainability: Development, globalisation and new tourism in the third world*. routledge.
- 25) Nguyen, H. Van, Diane, L., & Newsome, D. (2020). Kinh and ethnic tourism stakeholder participation and collaboration in tourism planning in Sapa, Vietnam. *International Journal of Culture, Tourism and Hospitality Research*, 14(4), 579–597.
- 26) ROSLIANA, Z. (2017). *Hubungan Partisipasi Masyarakat dalam Pengembangan Desa Wisata Dengan Kesejahteraan Masyarakat*. Studi Pustaka.
- 27) Salim, E. (1990). *Konsep Pembangunan Berkelanjutan*. Jakarta: Gramedia.
- 28) Sanjaya. (2020). *Hutan Lestari:Aspek Sosial Ekonomi yang Mempengaruhinya*. In Ida Bagus P. Eka Suadnyana (Ed.), *UNHI Press* (1st ed.). Denpasar Bali: Unhi Press.
- 29) Sanjaya, P. K. A., Dewi, M. H. U., Martini, N. P., & Dewi, I. A. S. D. (2018). *Ulun Danu Beratan Development as a Spiritual Tourism Attraction: Strategy for Accelerating Regional Economic Development*. *PROCEEDING BOOK*, 75.



## Strengthening the Resilience of Tourism Actors from the Supply Side Towards Bali's Economic Transformation

- 30) Sharpley, R., & Harrison, D. (2017). Conclusion: mass tourism in the future. In *Mass tourism in a small world* (pp. 232–240). CABI Wallingford UK.
- 31) Urmila, D. (2013). Pengembangan Desa Wisata Berbasis Partisipasi Masyarakat Lokal Di Desa Wisata Jatiluwih Tabanan, Bali. *Jurnal Kawistara*, 3(2), 129–139. <https://doi.org/10.22146/kawistara.3976>
- 32) Xu, H., Jiang, F., Wall, G., & Wang, Y. (2019). The evolving path of community participation in tourism in China. *Journal of Sustainable Tourism*, 27(8), 1239–1258.
- 33) Yasa, I. (2020). Community Empowerment in Tourism Development During the Digital Era in North Badung. *South East Asia Journal of Contemporary Business, Economics and Law*, 21(5).
- 34) Yasa, I. N. M. (2015). Pengaruh jumlah kunjungan wisatawan, lama tinggal wisatawan dan tingkat hunian hotel terhadap Pendapatan Asli Daerah dan kesejahteraan masyarakat pada Kabupaten/Kota di Provinsi Bali. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 6(7), 165–233.



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## The Relationship between Physical Freshness, Socioeconomic Status, and Learning Motivation and Physical Education Learning Outcomes in SMP Negeri 2 Solokan Jeruk, Bandung Regency



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**ABSTRACT:** This study aims to determine the relationship between 1) Physical Freshness and Physical Education Learning Outcomes, 2) Socioeconomic Status and Physical Education Learning Outcomes, 3) Learning Motivation and Physical Education Learning Outcomes, 4) Physical Freshness, Socioeconomic Status, and Learning Motivation as one and Physical Education Learning Outcomes. This study used correlational study design. The population consisted of 729 students, and the sample was 70 students. The sampling technique in this study used Proportional Random Sampling. The data collection method in this study used test and measurement methods in the form of TKJI tests and questionnaires. The data analysis technique in this study used ANOVA analysis. The analysis shows that 1) there is a significant relationship between Physical Freshness and Physical Education Learning Outcomes, with a sig. value of 0.000 and a correlation of  $0.724 > 0.235$ , 2) there is a significant relationship between Socioeconomic Status and Physical Education Learning Outcomes, with sig. value of 0.000 and a correlation of  $0.751 > 0.235$ , 3) there is a significant relationship between Learning Motivation and Physical Education Learning Outcomes with sig. value of 0.000 and a correlation of  $0.651 > 0.235$ , 4) there is a significant relationship between Physical Freshness, Socioeconomic Status, Learning Motivation, as one, and Physical Education Learning Outcomes, with a value of F count  $71.014 > F$  table 2.75 and sig. of  $0.000 < 0.05$ . Thus, it can be concluded that there is a significant relationship between physical freshness variables, socioeconomic status, and learning motivation and Physical Education learning outcomes at SMP Negeri 2 Solokan Jeruk, Bandung Regency.

**KEYWORDS:** Physical Freshness, Socioeconomic Status, Learning Motivation, Learning Outcomes, Physical Education

### INTRODUCTION

Muawanah (2018:57) reveals that education is a place to develop one's mentality, mindset and self-quality because education provides self-motivation for every human being to improve in all aspects of life. Education is a process of changing one's attitudes and behavior to develop abilities through teaching or training. Physical freshness is a person's ability to carry out physical activities without feeling tired by the availability of energy reserves for the next activity. In other words, someone with good physical freshness will be able to carry out activities without feeling tired, which means that if someone has poor physical freshness, the individual will have difficulty carrying out physical activities. Based on the opinion of Bampouras, T. M, et al. (2020: 17), physical freshness is a multifaceted construct that includes several components such as cardiorespiratory fitness, muscle strength, flexibility, and body composition. Hensrud et al. (2018: 13) assert that physical freshness is an essential factor in maintaining one's health and quality of life. Therefore, physical freshness is a need that needs to be owned by every individual, whether he is an athlete, student, university student, employee or ordinary person. Developing cognitive aspects is a significant aspect of many educational curricula because it refers to the process of knowing and knowledge. The development of cognitive aspects includes memory or recognition of specific facts, procedural patterns, and concepts that enable the development of abilities and intellectuals (Huda, 2013:169). Soraya et al. (2019:249) mentioned that physical freshness serves to develop individual workability so they can complete tasks well without experiencing significant fatigue. Physical freshness is essential to support a person in daily activities, even though everyone performs different activities according to their duties and professions.

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Learning in school is an activity that must be prioritized. One of the efforts to achieve the function of education is through physical education learning (Amiruddin et al., 2019, p. 19). Physical education is formal education that instills knowledge and values through physical activities that include learning in the development of students. Physical education is included in education in Indonesia, whose learning utilizes physical activities that are used as tools and media to achieve the goals of education and the development of students.

In physical education, of course, it has a goal similar to the purpose of education in Indonesia. Physical education has an overall goal that includes physical, cognitive, affective, emotional, social and moral aspects (Komarudin, 2016, p. 73). Physical education provides opportunities for students to know and understand their own physical, social, mental, and movement skills so that they can be developed through learning physical activities for a better life. Physical education aims to develop the potential of students in cognitive, affective, and psychomotor aspects. Physical freshness is a person's ability to carry out daily activities easily without excessive fatigue and still have the energy reserves to carry out other activities. Irianto (2013:475) states that physical freshness is the physical ability possessed by a person to carry out daily physical activities or exercises without experiencing meaningful fatigue and being able to complete activities efficiently. Physical freshness is an essential factor for students in school.

Physical freshness is a significant potential to support daily activities without feeling tired and even being able to carry out other activities. Purposeful and continuous physical activities will affect physical freshness and health (Singh & Bhatti, 2020). Physical freshness is the result of the work of the functioning of the body's systems, which includes improving the quality of human life in every activity that involves physical. Physical activity and intense exercise will be directly proportional to the level of freshness of the body (Alamsyah et al., 2017; Irhas & Anna, 2014)

Learning motivation plays an essential role in providing motivation, enthusiasm, and enjoyment of learning so that those with high motivation will have more energy to learn. According to Prawira (2013:320), "Learning motivation is intended to encourage or support someone doing learning activities to be more active in their learning to get better achievements". Therefore, learning motivation can encourage students to be active in learning Physical Education, Sports and Health and achieve good Physical Education, Sports and Health learning outcomes.

Based on the observations, the results of Physical Education learning at SMP Negeri 2 Solokan Jeruk varied. It is because each student has different abilities, and not all are able to master all fields in Physical Education. Learners' learning outcomes are obtained from skills and based on knowledge and attitude values. Thus, students' learning outcomes can also be determined from various factors; this study intends to examine the learning outcomes based on physical freshness, socioeconomic status, and learning motivation.

### **METHOD**

This quantitative study aims to determine whether there is a relationship between two or more variables. In this study, there are three independent variables, namely physical freshness, socioeconomic status, and learning motivation, as well as dependent variables, namely physical education learning outcomes. Using correlation analysis based on Hadiwidjojo's opinion (2021:27) which is: "...to evaluate the relationship between two or more variables in a sample or population". Correlation analysis measures the strength of a linear relationship between two or more variables. The data analysis stages used in this study were validity test, reliability test, pre-requisite test, and hypothesis test using R test and F test. Population is the main object of planned research. Based on the opinion of Ali Maksum (2012:53), the population is the whole individual or object intended to be studied, which will later be subject to generalization. The population in this study were 729 students of Class VII and VIII of SMP Negeri 2 Solokan Jeruk Bandung Regency. The sampling technique in this study used random sampling. Based on Arikunto's (2013:157) opinion, random sampling is a sampling technique or element at random, where each element or member of the population has an equal chance of being selected as a sample. According to Arikunto (2012:104), if the population is less than 100 people, the number of samples is taken as a whole. However, if the population is more than 100 people, then 10-15% or 20-25% of the population can be taken. Sampling in this study was randomly carried out by gambling. This research was conducted on May 19, 2023. Data collection in this study will be carried out at SMP Negeri 2 Solokan Jeruk Bandung Regency.

### **DISCUSSION**

#### **1. Physical Freshness**

Variable about physical freshness have several types of valid tests with 70 respondents. From the data obtained, physical freshness obtained results with a maximum value of 24; minimum value of 20, mode 12; median 16; mean 15.83, and standard deviation of 3.599.

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**Table 1. Descriptive Statistics of Physical Freshness**

N	Valid	70
	Missing	0
Mean		15.83
Median		16.00
Mode		12 <sup>a</sup>
Std. Deviation		3.599
Variance		12.956
Range		14

The number of interval classes obtained was a total of seven classes using the formula  $1 + 3.3 \log n$ . The data range in this variable is  $24 - 10 = 14$ , with the knowledge of the range value, it is found that the class length for the interval of each group is  $14 : 7 = 2$ . The following is the frequency distribution table.

**Table 2. Frequency Distribution of Physical Freshness**

No	Interval	Frekuensi	Persentase
1	10-11	7	10%
2	12-13	15	21,4%
3	14-15	12	17,1%
4	16-17	15	21,4%
5	18-19	10	14,3%
6	20-21	4	5,7%
7	22-23	5	7,1%
8	24-25	2	2,9%
Jumlah		70	100%

**2. Socioeconomic Status**

The variable on Socioeconomic Status has 13 valid statement questions with 70 respondents. From the data obtained, Socioeconomic Status was obtained with a maximum value of 54; minimum value of 21; mode 35; median 35; mean 35.10; and standard deviation of 7.289.

**Table 3. Descriptive Statistics of Socioeconomic Status**

N	Valid	70
	Missing	0
Mean		35.10
Median		35.00
Mode		35
Std. Deviation		7.289
Variance		53.135
Range		33
Minimum		21
Maximum		54

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The number of interval classes obtained was 7 using the formula  $1 + 3.3 \log n$ . The data range in this variable is  $54-21 = 33$ , with the knowledge of the range value, it is found that the class length for the interval of each group is  $33:7 = 5$ . The following is the frequency distribution table.

**Table 4. Frequency Distribution of Socioeconomic Status**

No	Interval	Frekuensi	Persentase
1	21-25	6	8,6%
2	26-30	15	21,4%
3	31-35	17	24,3%
4	36-40	18	25,7%
5	41-45	7	10,0%
6	46-50	5	7,1%
7	51-55	2	2,9%
Jumlah		70	100%

### 3. Learning Motivation

The variable on learning motivation has 32 valid statement questions with 70 respondents. The learning motivation obtained results from the data obtained with a maximum value of 120, a minimum value of 76; a mode of 90; a median of 90; a mean of 91.93; and a standard deviation of 10.201.

**Table 5. Descriptive Statistics of Learning Motivation**

N	Valid	70
	Missing	0
Mean		91.93
Median		90.00
Mode		90
Std. Deviation		10.201
Variance		104.067
Range		44
Minimum		76
Maximum		120

The number of interval classes obtained was 7 using the formula  $1 + 3.3 \log n$ . For the data range in this variable is  $120-76 = 44$ . With the knowledge of the range value, it is found that the class length for the interval of each group is  $44:7 = 6$ . The following is the frequency distribution table.

**Table 6. Learning Motivation Frequency Distribution**

No	Interval	Frekuensi	Persentase
1	76-81	12	17,1%
2	82-87	10	14,3%
3	88-93	26	37,1%
4	94-99	7	10,0%
5	100-105	5	7,1%
6	106-111	5	7,1%
7	112-117	4	5,7%
8	118-123	1	1,4%
Jumlah		70	100%

# The Relationship between Physical Freshness, Socioeconomic Status, and Learning Motivation and Physical Education Learning Outcomes in SMP Negeri 2 Solokan Jeruk, Bandung Regency

## 4. Learning Outcomes

Variables about learning outcomes consisted of 70 respondents. From the data obtained, the learning outcomes obtained results with a maximum value of 91; minimum value of 80; mode of 85 ; median 85, mean 85.46; and standard deviation of 2.518.

**Table 7. Descriptive Statistics of Learning Outcomes**

N	Valid	70
	Missing	0
Mean		85.46
Median		85.00
Mode		85 <sup>a</sup>
Std. Deviation		2.518
Variance		6.339
Range		11
Minimum		80
Maximum		91

The number of interval classes obtained was 6 classes using the formula  $1 + 3.3 \log n$ . For the data range in this variable is  $91 - 80 = 11$ . With the knowledge of the range value, it is found that the class length for the interval of each group is  $11 : 6 = 2$ , the following is the frequency distribution table.

**Table 8. Frequency Distribution of Learning Outcomes**

No	Interval	Frekuensi	Persentase
1	80-81	4	5,7%
2	82-83	13	18,6%
3	84-85	19	27,1%
4	86-87	19	27,1%
5	88-89	11	15,7%
6	90-91	4	5,7%
Jumlah		70	100%

## Hypothesis Test Results

A simple regression analysis will be used using the SPSS V.25.0 for Windows application to examine the significant relationship between physical freshness and physical education learning outcomes. Before determining the value of the relationship between physical freshness and physical education learning outcomes, it is necessary to analyze the relationship between the two variables. Meanwhile, the t-test results based on the results of the SPSS can be seen in the following table.

**Table 8. T-test**

Model		Coefficients <sup>a</sup>				Sig.
		Unstandardized Coefficients		Standardized Coefficients	t	
		B	Std. Error	Beta		
1	(Constant)	77.445	.950		81.524	.000
	Kesegaran Jasmani	.506	.059	.724	8.646	.000

## The Relationship between Physical Freshness, Socioeconomic Status, and Learning Motivation and Physical Education Learning Outcomes in SMP Negeri 2 Solokan Jeruk, Bandung Regency

### 1) Significance Test

Based on the SPSS output results regarding the correlation coefficient, the correlation coefficient value is 0.724, and this coefficient is a positive sign. This issue shows that if physical freshness increases, physical education learning outcomes also increase. It can be seen that the relationship of physical freshness to physical education learning outcomes is significant; which is evidenced by  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ), and it can be said that  $H_0$  is rejected.  $H_a$  is accepted, so it can be concluded that a positive and significant relationship exists between physical freshness and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk Bandung Regency.

### 2) Regression Equation

Based on the results of the SPSS table above, a regression coefficient of 0.509 (b) and a constant value of 77.445 (a) can be written in the form of a physical freshness variable relationship in the form of a simple linear regression equation as follows:

$$Y = a + bX_1$$

$$Y = 77,445 + 0,509 X_1$$

These results show that physical freshness increased by 1 point, so learning outcomes increased by 0.509 constant points of 77.445. Thus, the better the physical freshness, the higher the learning outcomes. The magnitude of the relationship between physical freshness and physical education learning outcomes in SPSS results is as follows:

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
a. Predictors: (Constant), Kesegaran Jasmani				

Based on the results above, it can be explained that the physical fitness variable is related to physical education learning outcomes by 51.7% and by 48.3% determined by causes other than simple regression models or partial tests not studied in this study.

A simple regression analysis will be used using the SPSS V.25.0 for Windows application to examine the significant relationship between socioeconomic status and physical education learning outcomes. Before determining the value of the relationship between learning media and physical education learning outcomes, it is necessary to analyze the relationship between the two variables. Meanwhile, the t-test results based on the results of the SPSS can be seen in the following table..

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	76.354	.991		77.014	.000
	Status Sosial Ekonomi	.259	.028	.751	9.374	.000

Based on the results of the table above, the data can be used to test hypotheses as follows:

### 1) Significance Test

Based on the SPSS output results regarding the correlation coefficient, the correlation coefficient value is 0.751 and this coefficient is a positive sign. It will show that physical education learning outcomes increase if socioeconomic status increases. It can be seen that the relationship of physical freshness to physical education learning outcomes is significant; this is evidenced by  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ), and it can be said that  $H_0$  is rejected, and  $H_a$  is accepted. Thus, it can be concluded that there is a positive and significant relationship between socioeconomic status to physical education learning outcomes at SMP Negeri 2 Solokan Jeruk Bandung Regency.

## The Relationship between Physical Freshness, Socioeconomic Status, and Learning Motivation and Physical Education Learning Outcomes in SMP Negeri 2 Solokan Jeruk, Bandung Regency

### 2) Regression Equation

Based on the results of the SPSS table above, a regression coefficient of 0.259 (b) and a constant value of 76.354 (a) can be written in the form of a physical freshness variable relationship in the form of a simple linear regression equation as follows:

$$Y = a + bX_1$$

$$Y = 76,354 + 0,259 X_1$$

These results show that socioeconomic status increased by 1 point, so learning outcomes increased by 0.259 constant points of 76.354. Thus, the better the socioeconomic status, the higher the learning outcomes. The magnitude of the relationship between Socioeconomic Status and physical education learning outcomes in the SPSS results is as follows:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751 <sup>a</sup>	.564	.557	1.675

Based on the results above, it can be explained that the socioeconomic variable is related to physical education learning outcomes by 55.7% and by 44.3% determined by causes other than simple regression models or partial tests not studied in this study.

A simple regression analysis will be used using the SPSS V.25.0 for Windows application to examine the significant relationship between learning motivation and physical education learning outcomes. Before determining the value of the relationship between learning motivation and physical education learning outcomes, it is necessary to analyze the relationship between the two variables. Meanwhile, the t-test results based on the results of the SPSS can be seen in the following table.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.692	2.102		33.637	.000
	Motivasi Belajar	.161	.023	.651	7.068	.000

Based on the results of the table above, the data can be used to test hypotheses as follows:

### 1) Significance Test

Based on the SPSS output results regarding the correlation coefficient, the correlation coefficient value is 0.651, and this coefficient is a positive sign. It will show that physical education learning outcomes increase if learning motivation increases. It can be seen that the relationship of learning motivation to physical education learning outcomes is significant; which is evidenced by  $\text{Sig} < \alpha$  ( $0.000 < 0.05$ ), and it can be said that  $H_0$  is rejected, and  $H_a$  is accepted. So it can be concluded that a positive and significant relationship exists between learning motivation and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk Bandung Regency.

### 2) Regression Equation

Based on the results of the SPSS table above, a regression coefficient of 0.161 (b) and a constant value of 70.692 (a) can be written in the form of a learning motivation variable relationship in the form of a simple linear regression equation as follows:

$$Y = a + bX_1$$

$$Y = 70,692 + 0,161 X_1$$

These results show that learning motivation increased by 1 point, so learning outcomes increased by 0.161 points constant 70.692. Thus, the better the motivation to learn, the higher the learning outcomes. The magnitude of the relationship between learning motivation and physical education learning outcomes in SPSS results is as follows:



**The Relationship between Physical Freshness, Socioeconomic Status, and Learning Motivation and Physical Education Learning Outcomes in SMP Negeri 2 Solokan Jeruk, Bandung Regency**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 <sup>a</sup>	.424	.415	1.926

Based on the results above, it can be explained that the learning motivation variable is related to physical education learning outcomes by 41.5% and by 58.5% determined by causes other than simple regression models or partial tests not studied in this study.

A simple regression analysis will be used using the SPSS V.25.0 for Windows application to examine the significant relationship between physical freshness, socioeconomic status, and learning motivation, as one, and physical education learning outcomes. Before determining the value of the relationship between physical freshness, socioeconomic status, and learning motivation, as one, and physical education learning outcomes, it is necessary to analyze the relationship between those four variables. Meanwhile, the t-test results based on the results of the SPSS can be seen in the following table.

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.877	1.391		50.951	.000
	Motivasi Belajar	.050	.019	.204	2.628	.011
	Status Sosial Ekonomi	.166	.024	.480	6.839	.000
	Kesegaran Jasmani	.261	.055	.374	4.787	.000

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	333.923	3	111.308	71.014	.000 <sup>b</sup>
	Residual	103.448	66	1.567		
	Total	437.371	69			

**1) Significance Test**

Based on the computer output above,  $f_{count} 71,014 > f_{table} 2.75$  at the significance level of 5%. The model of the relationship between physical freshness, socioeconomic status, and learning motivation, altogether, and physical education learning outcomes is significant. It is shown by the magnitude of the significance of  $Sig < \alpha$  ( $0.000 < 0.05$ ), and it can be said that  $H_0$  is rejected, and  $H_a$  is accepted, so it can be concluded that there is a positive and significant relationship between physical freshness, socioeconomic status, learning motivation and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk Bandung Regency.

**2) Regression Equation**

Based on the results of multiple linear regression analysis using computer output in the table above, the multiple regression equation is obtained as follows: The constant of 70.877 physical freshness coefficient (X1) is 0.050, Socioeconomic Status coefficient (X2) is 0.166 and learning motivation coefficient (X3) is 0.261. Thus, the regression equation is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

$$Y = 70,877 + 0,050 X_1 + 0,166 X_2 + 0,261 X_3$$

Based on this equation, it can be interpreted that physical freshness (X1) increases by 1 point, so learning outcomes increase by 0.050 points at a constant of 70.877. If Socioeconomic Status (X2) increases by 1 point, then learning outcomes increase by 0.166

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points at constant 70.877 and if learning motivation (X3) increases by 1 point, then learning outcomes increase by 0.261 points at constant 70.877. Thus, it can be concluded that the more physical freshness, socioeconomic status and learning motivation, altogether, increase, the more physical education learning outcomes increase too, and it can be seen in the table below:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874 <sup>a</sup>	.763	.753	1.252

Based on the output above, it can be explained that an R square value of 0.763 was obtained. It means that the variables of physical freshness, socioeconomic status and learning motivation are related to physical education learning outcomes by 76.3%, and the remaining 23.7% is determined by other causes that were not studied in this study.

### CONCLUSION

The results showed that: 1. There is a significant relationship between physical freshness and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk, Bandung Regency. 2. There is a significant relationship between socioeconomic status and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk, Bandung Regency. 3. There is a significant relationship between learning motivation and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk, Bandung Regency. 4. There is a significant relationship between these variables: physical freshness, socioeconomic status, and learning motivation, as one, and physical education learning outcomes at SMP Negeri 2 Solokan Jeruk, Bandung Regency.

### REFERENCES

- 1) Alamsyah, D. A. N., Hestningsih, R., & Saraswati, L. D. (2017). *Faktor-Faktor Yang Berhubungan Dengan Kesegaran jasmani Pada Remaja Peserta didik Kelas Xi Smk Negeri 11 Semarang*. Jurnal Kesehatan Masyarakat (e-Journal), 5(3), 77–86.
- 2) Amiruddin, A., Askar, A., & Yusra, Y. (2019). *Development of Islamic Religious Education Learning Model based on Multicultural Values*. International Journal Of Contemporary Islamic Education, 1 (1), 1-19.
- 3) Arikunto, Suharsimi. (2010). *Prosedur penelitian, suatu pendekatan praktik*. Jakarta: PT Rineka Cipta.
- 4) Bampouras, T. M., Dewhurst, S., & Rutter, K. (2020). *Determinants of functional fitness in community-dwelling older adults*. International journal of environmental research and public health, 17(7), 2354
- 5) Hadiwidjojo, D. (2021). *Dasar-dasar statistika untuk ilmu sosial dan bisnis*. PT Gramedia Widiasarana Indonesia
- 6) Hensrud, D. D., Klein, S., Appel, L. J., & Kushner, R. F. (2018). *Management of overweight and obesity in adults: American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society*. Journal of the American College of Cardiology, 71(13), e91-e120.
- 7) Huda, Miftahul. (2013). *Model-model Pengajaran dan Pembelajaran*. Yogyakarta: Pustaka Pelajar.
- 8) Irhas, A., & Anna, N. (2014). *Hubungan Status Gizi Dan Aktivitas Fisik Dengan Tingkat Kesegaran jasmani Peserta didik Sekolah Dasar (Studi Pada Peserta didik Kelas Ivb Dan V Mi Al Hikmah Gempol Manis)*. Jurnal Kesehatan Olahraga, 2(2).
- 9) Irianto, F. Y. (2013). *Hubungan Status Gizi dan Aktivitas Olahraga dengan Tingkat Kebugaran*. Jurnal Pendidikan Olahraga Dan Kesehatan, 01(01), 475-478.
- 10) Komarudin. (2016). *Membentuk Kematangan Emosi dan Kekuatan Berpikir Positif Pada Remaja Melalui Pendidikan Jasmani*. Jurnal Pendidikan Jasmani Indonesia. 12 (2). 73.
- 11) Muawanah. (2018). *Pentingnya Pendidikan Untuk Tanamkan Sikap Toleran di Masyarakat*. Jurnal Vijjacariya. 5(1). 57-70.
- 12) Prawira, Purwa Atmaja. (2013). *Psikologi Pendidikan dalam Perspektif Baru*. Jogjakarta: Ar-Ruzz Media.
- 13) Singh, K., & Bhatti, G. K. (2020). *Effect of Physical Exercise Training to Improve Physical Fitness in Overweight Middle-Aged Women*. International Journal of Scientific Research, 9(1), 6–9.
- 14) Soraya, I., & Sugihartono, T. (2019). *Pengaruh latihan SKJ 2018 terhadap peningkatan kesegaran jasmani mahapeserta didik putri penjas UNIB*. Kinestetik, 3(2), 249-255. ISSN: 2685-6514.



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## Survey on the Availability of Facilities and Infrastructure and Active Participation of Physical Education, Sports and Health Teachers in Teacher Deliberation (MGMP) on Their Performance and Professional Competence at Junior High Schools in Sorong City



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**ABSTRACT:** This study aims to obtain an overview of the availability of facilities and infrastructure and the active participation of Physical Education, Sports, and Health teachers in Teacher Deliberation (MGMP) on their performance and competence at Junior High Schools in Sorong City. This qualitative descriptive research is quantified. The population of this research was 30 Physical Education, Sports and Health teachers at Junior High Schools teachers in Sorong City. The sample in this study was 30 people who were chosen through total sampling technique. The instrument used was a closed questionnaire distributed through Google form. The results of the research and discussion can be concluded as follows: (1) The classification of facilities and infrastructure with the highest frequency of 18 with the highest relative value of 59.5% shows that the facilities and infrastructure of junior high schools in Sorong City is included in the low category. (2) The classification of active participation of Physical Education, Sports and Health teachers in teacher deliberation (MGMP) by looking at the highest relative frequency of 8 and the highest relative value of 26.67% shows a high category. (3) The classification of the performance of Physical Education, Sports, and Health teachers by looking at the highest relative value of 17 and the frequency of the frequency value of 56.67% shows a very high category. (4) the classification of the professional competence of Physical Education, Sports, and Health teachers based on the highest frequency of 11 and the highest relative value of 36.67% shows a high category. Based on these results, it can be concluded that facilities and infrastructure and Physical Education, Sports, and Health teacher deliberation influence each other on performance and professional competence of Physical Education, Sports, and Health teachers at Junior High Schools in Sorong City with a contribution amount of 55.1%, or it is categorized as low.

**KEYWORDS:** Availability of Facilities and Infrastructure, Teacher Deliberation (MGMP), Performance, Professional Competence of Teachers

### INTRODUCTION

The educational process is related to school facilities and infrastructure. The implementation of the education process must be able to meet the components of facilities and infrastructure needed during the learning process. Therefore, the fulfillment of facilities and infrastructure is critical because if it cannot be fulfilled, it will interfere or even fail the educational process. Mulyani and Marliya (2020) explain that teachers are one of the most decisive components for implementing the educational process, namely as a facilitator in the learning process. The solution to overcoming the above problems is managing educational facilities and infrastructure to develop dynamically (Novita, 2017), following Government Regulation No. 19 of 2005 regarding National Education Standards concerning national educational facilities and infrastructure standards in Chapter VII Article 42. Educational facilities and infrastructure is one of several vital resources and represent an institution's progress in fully supporting learning activities (Fauzan, 2018: 41). Facilities and infrastructure is an essential tool for educational institutions, and it is part of the eight National Education standards. Because of the importance of facilities and infrastructure in education, each institution competes to meet the standard criteria for educational facilities and infrastructure to advance the quality of the learning process (Ristianah, 2018). The availability of suitable facilities and infrastructure will positively impact teacher performance and the learning process.

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A good learning process will support educational goals. Therefore, the availability of facilities and infrastructure in schools must be considered to maximize teacher performance during the learning process. It will facilitate teacher performance from several teacher burdens that must be met.

Sulami et al. (2021:2) believe that learning facilities and infrastructure is an essential part of teaching and learning that must be provided by schools. It is a teacher's need that cannot be ruled out. Teachers must have textbooks and other supporting books so that the teachers will have broad knowledge.

According to Suntonda & Aulia (2019) related the role of Physical Education, Sports, and Health teacher deliberation (MGMP PJOK) on the performance of Physical Education, Sports and Health teachers, it is stated that Physical Education, Sports, and Health teacher deliberation is a forum for professionals, especially Physical Education, Sports and Health teachers who are in one district/city/sub-district/educational unit whose activities are carried out by and for the teachers, which are nonstructural and independent based on the principle of togetherness, and it has no hierarchical relationship with other institutions. The role of Physical Education, Sports, and Health teacher deliberation, as mentioned by Suntonda (2011) includes: a. Becoming an extension/partner of the Education Office in disseminating educational information and policies. b. Facilitating member creativity in terms of learning development and learning model innovation. c. Implementing and informing curriculum changes or the development of more creative and innovative teaching materials. d. Accommodating activities related to Physical Education and sports in schools and education offices. Physical Education, Sports, and Health teacher deliberation in Sorong City has an essential role in developing Physical Education, Sports, and Health subject and in developing Physical Education, Sports and Health teacher's competencies, at the elementary schools, junior high schools, and senior high school levels. Physical Education, Sports and Health teacher deliberation plays a role in providing solutions to overcome the problems experienced during the Physical Education, Sports and Health learning process. Some of these problems include the limited infrastructure and facilities, the low quality of teaching or the need for more relevant learning models for student's physical and mental development.

Sustrino (2011), in the teacher deliberation seminar on tips for becoming a professional Physical Education teacher, also reveals problems associated with the national sports development framework by saying that one of the most critical problems was the weak implementation of the physical education sub-system. It is reflected in several indicators, namely: (a) the discontinuity of the components of the Physical Education, Sports and Health curriculum among elementary school, junior high school, senior high school and college, (b) the low effectiveness of learning in Physical Education, Sports and Health when viewed from the achievement of overall educational goals that include physical, mental, social, emotional, and moral aspects, (c) there are still inadequate infrastructure facilities, (d) as well as the low effectiveness of implementing coaching and improving physical education from elementary school to high school. Decreasing student's motivation towards physical Education, Sports and Health lessons is a reality. Students get bored quickly and consider it even more torturous when attending Physical Education, Sports and Health lessons. This situation signals to all Physical Education, Sports and Health Teachers to improve their competence, both their pedagogical competence and professional competence. The benefits of implementing Physical Education, Sports and Health teacher deliberation in Sorong City as described by Saleh (Physical Education, Sports, and Health teacher in Sorong), the head of Physical Education, Sports and Health teacher deliberation at the junior high school level for the 2019-2021 period, include being a place for discussing the issue related to teaching Physical Education, Sports and Health which topics could be from the participants themselves. Moreover, Physical Education, Sports and Health teachers can share new knowledge about Physical Education.

The obstacles encountered in implementing Physical Education, Sports and Health teacher deliberation, as mentioned by the Junior High School Supervisor at the Sorong City Education Office, include limited funds provided for operational activities of teacher deliberation. There is a small amount of funds from the Education Office for implementing teacher deliberation, which is then replaced with office stationery. Especially for teacher deliberation at the junior high school level, it is difficult to unify the views of teacher deliberation's participants because the higher the level of education, the more different the interests brought by each participant.

It can be understood that teacher deliberation in every regency or city is expected to be able to shape the character of teachers to be more professional and to improve the professional competence of teachers, especially in the development of curricula that continue to change according to changing times. With the Physical Education, Sports and Health teacher deliberation, in Sorong City, Physical Education, Sports and Health teachers there should be used well to play an active role in every activity held by the teacher deliberation.

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In addition, the quality of learning in schools is influenced by teacher performance. Teachers are a significant factor in the educational process. Although the educational facilities are complete and sophisticated, qualified teachers must support them to lead to maximum teaching and learning (Utami, 2003:1). Teachers as national education implementers are the main key factors.

The low performance of teachers in schools is also influenced by various factors, including competence, work motivation, work discipline, job satisfaction, the organization where teachers teach, the leadership of principals, and government policies on education (Abdullah, 2020). It aligns with Kasmir's (2018) opinion, which states that factors including work environment, organizational culture, leadership, work motivation, work discipline, salary, job satisfaction, infrastructure and other factors influence teacher performance. Teacher performance will be optimal if it is integrated with school components, whether it is the principal or students. Thus, teacher's role is dominant in shaping students into qualified human beings without reducing or eliminating other roles and functions. Teacher performance as the implementation of duties and obligations as educators is one of the factors that plays an essential role in the success of education (Suharsaputra & Cahyono, 2019).

Another factor that causes improvement in the quality of learning is the competence/ability that the teacher must master. Husaini and Marliya (2020:206) explain that several factors can improve teacher performance, including salary, facilities and infrastructure, physical work environment conditions and leadership. Teachers are the most critical component in the education system that must be a central concern. This one figure will always be a strategic highlight when talking about educational issues because teachers are always related to any component of the world of education.

Based on the authors' observations in several junior high schools in Sorong City that are still in the 3T zone area, the researcher found indicators stating that school infrastructure needs to be improved and many teachers still need to be involved in the teacher deliberation forum. In Pratama's research(2021), it is said that the level of suitability of facilities and infrastructure in high schools in Sorong Regency is 48.75%, said to be still low. These indicators, among others, are still found in classrooms used as practicum infrastructure. In addition, it is still very demanding for Physical Education, Sports and Health teachers to modify the tools/facilities used to achieve learning material objectives. Therefore, from the observations made by several teachers, several teacher performances and competencies need to be maximally achieved in learning due to various obstacles mentioned from school infrastructure and teacher involvement in the teacher deliberation forum. It affects the success of teaching and learning activities in students.

### **METHOD**

This research is a qualitative descriptive study that is quantified because it describes the state of facilities and infrastructure and the active participation of Physical Education, Sports and Health teachers in teacher deliberation on the professional performance and competence of junior high school teachers in Sorong City. According to Sugiyono (2019:18), the qualitative research method is based on the post-positivism philosophy used to examine objects with natural conditions (actual conditions, not set or in experimental conditions) where the researcher is the key instrument. Meanwhile, according to Ali Maksum (2012:68), descriptive research is research conducted to describe specific symptoms, phenomena or events. Data collection is carried out to obtain information about specific conditions or variables and is not intended for hypothesis testing. This study uses a descriptive approach method with survey techniques, defined as a study that describes the data factually and objectively. This research was conducted at a junior high school in Sorong City, Southwest Papua Province. The research period took place from June to July 2023. The population in this study was teachers at junior high schools in Sorong City. The sample used in this study was 30 Physical Education, Sports and Health teachers using total sampling to determine the number of 30 teachers obtained in junior high school in Sorong City. The data collection technique used in this study was a questionnaire test. This study used a closed questionnaire whose answers were already available; respondents only gave a sign on the alternative answers provided.

### **DISCUSSION**

Respondents in this study consisted of Physical Education, Sports and Health junior high school teachers in Sorong City to answer questionnaires on the details of facilities and infrastructure, active participation of Physical Education, Sports and Health teachers in teacher deliberation, teacher performance, and teacher professional competence. The respondents in this study were 30 schools and had fulfilled the requirements in the determination technique as a research sample with 30 teachers consisting of 23 male and seven female.

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**Table 1. Research Sample Respondent**

No	School	Teacher		Total number of teacher
		M (Male)	F (Female)	
1	SMP Negeri 3. KOTA Sorong	M		1
2	SMP Muhammadiyah Al amin	M		1
3	MTs. Negeri Kota Sorong	M		1
4	SMP YPK Syaloom	M		1
5	Smp N 4 kota Sorong	M		1
6	SMP PGRI Kota Sorong	M		1
7	MTs Neg. Kota Sorong	M		1
8	SMP Negeri 2 Kota Sorong		F	1
9	SMP Negeri 3 Kota Sorong		F	1
10	MTsS Ar Raodah		F	1
11	MTSS Muhammadiyah 1 Kota Sorong		F	1
12	MTsS Al-Akbar		F	1
13	MTsN Model Sorong	M		1
14	SMP Adven	M		1
15	SMP N 5 Sorong	M		1
16	SMP YPPKK Moria Sorong	M		1
17	SMP N 10 Sorong		F	1
18	SMP 1 Sorong		F	1
19	SMPS IT Al-Izzah Sorong	M		1
20	SMP YPK Don Bosco	M		1
21	SMPS Kalam Kudus	M		1
22	SMP N 1 Dum	M		1
23	SMP N 6 Kota Sorong	M		1
24	SMP YPK 3 Malanu	M		1
25	SMP Guppi Kota Sorong	M		1
26	SMPN 9 Sorong	M		1
27	SMP Quba	M		1
28	SMP YPP Siloam	M		1
29	SMP Cahaya Islam Kota Sorong	M		1
30	SMP N 7 Sorong	M		1

**a. Instrument Validity Test**

Validity is the level of reliability and legality of the measuring instrument used. It is said that valid means that the measuring instrument used to obtain the data is valid or can be used to measure what should be measured. The authors used the SPSS 16 application in processing trial data in this study. Each question or statement compares the  $r$  count and  $r$  table in the validity test. If  $r$  count  $\geq$   $r$  table, then the instrument is considered valid. If  $r$  count  $<$   $r$  table, then the instrument is considered invalid, so the instrument cannot be used for research. Then, the results of the instrument trial are as follows.

**Table 2. Instrument Trial Result**

Research Questionnaire	Number of question items before trial	Number of question items after trial	Number of invalid questionnaire items
Facilities and Infrastructure	20	20	0 questionnaire item
Teacher Deliberation (MGMP)	34	31	3 questionnaire items
Teacher Performance	28	24	4 questionnaire items
Teacher Professional Competency	25	24	1 questionnaire items

**Source:** SPSS 16 Data Processing

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### b. Instrument Reliability Test

Reliability is the consistency of the research instruments used. Determination of instrument reliability in this study used Alpha Cronbach's formula in the SPSS 16 application. Therefore, the reliability test results are as follows.

**Table 3. Instrument Reliability Test Results**

Research Questionnaire	Number of Questionnaire	Cronbach's Alpha Value	Description
Facilities and Infrastructure	20	0.801	Reliable
Teacher Deliberation (MGMP)	33	0.880	Reliable
Teacher Performance	23	0.683	Reliable
Teacher Professional Competency	24	0.703	Reliable

Source: SPSS 16 Data Processing

The table above shows that an instrument of facilities and infrastructure, teacher deliberation, teacher performance, and teacher professional competence is trusted enough to be used as a data collection tool because the instrument is reliable. After testing the reliability of the infrastructure instrument used to collect data, the results obtained a value of 0.801 which means in a very high category. The teacher deliberation instrument obtained a value of 0.880 which is a very high category. In the teacher performance instrument, the score was 0.683 in a sufficient category, while in the teacher professional competence instrument, the score was 0.8703 which is in a sufficient category. Thus, the four questionnaires can be used in this study.

In this study, the data obtained were infrastructure, teacher deliberation, teacher performance, and teacher professional competence. Descriptive statistics of each variable can be seen in the following table:

**Table 4. Descriptive Analysis of Facilities and Infrastructure, Teacher Deliberation, Teacher Performance, Teacher Professional Competence**

No.	Data	Variance Source						
		Total	Mean	Median	Modus	Std. Deviation	Max	Min
1	Facilities and Infrastructure	30	61.90	62.50	63	6.222	77	40
2	Teacher Deliberation (MGMP)	30	1.080	111.50	116	10.707	126	89
3	Teacher Performance	30	77.067	79.00	80	5.570	84	60
4	Teacher Professional competence	30	73.07	9,588	70	9.588	91	50

Source: SPSS 16 Data Processing

### a. Facilities and Infrastructure

Based on data table 15, it can be seen that the total value of N of infrastructure facilities is 30, with an average of 61.90, and the standard deviation is 6.50. The results of the infrastructure facilities obtained were highest at 77 and lowest at 40. Based on the value obtained, the classification of infrastructure variables is as follows:

**Table 5. Facilities and Infrastructure Classification**

No	Category	Score Range	Frequency	Relative
1	Very High	$x \geq 69$	5	16.67%
2	High	$60 \leq X < 69$	18	60%
3	Low	$51 \leq X < 60$	6	20%
4	Very low	$x < 51$	1	3.33%
Total			30	100

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**b. Teacher Deliberation/MGMP (X2)**

Based on data table 15, it can be seen that the total Teacher Deliberation N value is 30 with an average of 1.080, and the standard deviation is 1.115. MGMP results obtained the highest at 126 and the lowest at 89. Based on the obtained value, the classification of the subject teacher deliberation variable is as follows:

**Table 6. Teacher Deliberation Classification (X2)**

No	Category	Score Range	Frequency	Relative
1	Very High	$x \geq 117$	8	26.67%
2	High	$108 \leq x < 117$	8	26.67%
3	Low	$99 \leq X < 108$	7	23.33%
4	Very Low	$x < 99$	7	23.33%
Total			30	100

**c. Teacher Performance (Y1)**

Berdasarkan tabel data 15 dapat dilihat total keseluruhan nilai N kinerja guru sebesar 30 dengan rata-rata 77,067 dan simpangan baku yaitu 79,00. Hasil kinerja guru yang diperoleh tertinggi 84 dan terendah 60. Berdasarkan nilai yang diperoleh, maka penggolongan variabel kinerja guru sebagai berikut:

**Table 7. Classification of Physical Education, Sports and Health Teacher Performance (Y1)**

No	Category	Score Range	Frequency	Relative
1	Very High	$x \geq 78$	17	56.67%
2	High	$72 \leq x < 78$	9	30%
3	Low	$66 \leq X < 72$	2	6.67%
4	Very Low	$x < 66$	2	6.67%
Total			30	100

**d. Professional Competence of Physical Education, Sports and Health Teachers (Y2)**

Based on data table 15, it can be seen that the total value of N professional competence of teachers is 30, with an average of 73.07, and the standard deviation is 9.588. The teachers' professional competence results obtained the highest 91 and the lowest 50. Based on the values obtained, the classification of professional competence variables of Physical Education, Sports and Health teachers is as follows:

**Table 8. Classification of Physical Education, Sports and Health Teachers Professional Competence (Y2)**

No	Category	Score Range	Frequency	Relative
1	Very High	$x \geq 81$	8	26.67%
2	High	$71 \leq x < 81$	11	36.67%
3	Low	$60,5 \leq X < 71$	9	30%
4	Very Low	$x < 60,5$	2	6.67%
Total			30	100

**a. Classical Assumption Test**

**1) Data Normality Test**

The normality test in the regression model was used to test whether the residual values resulting from the regression were usually distributed. A good regression model has a residual value that is typically distributed. It is said to be normally distributed if the asymp significance value is  $\geq 0.05$ . In contrast, if the asymp significance value is  $< 0.05$ , then the data is said to be not normally distributed. The results of the Kolmogorov-Smirnov one-sample test can be seen in the following table.



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**Table 9. Normality Test Results**

Variable	Asymp Significance Value Unstandardized Residual	Description
Facilities and Infrastructure	0.476	Normal
Teacher Deliberation (MGMP)	0.558	Normal
Teacher Performance	0.098	Normal
Teacher Professional Competence	0.876	Normal

Based on the results of the table calculation, it can be seen that the asymp significance value of residual data obtained in facilities and infrastructure is  $0.476 > 0.05$ , the asymp significance value of residual data obtained in Teacher Deliberation (MGMP) is  $0.558 > 0.05$ , the significance asymp value of residual data obtained in teacher performance is  $0.098 > 0.05$ , and the significance asymp value of residual data obtained in teacher professional competence is  $0.876 > 0.05$ . From the normality test results, it can be concluded that the four variables are normal.

## 2) Linearity Test

The linearity test determines whether two variables have a significant linear relationship. This linearity test's basis for decision-making is if the deviation value from linearity sig.  $> 0.05$ , the two linear variables were concluded, and vice versa. The following are the linearity test results in the following table.

**Tabel 10. Linearity Test Results**

Variable	Deviation From Linearity	Description
Facilities and Infrastructure on Teacher Performance	0.377	Linear
Teacher Deliberation (MGMP) on Teacher Professional Competence	0.552	Linear

The results of the linearity test in the table above show that the variable of facilities and infrastructure on teacher performance is 0.377, and the variable of Teacher Deliberation (MGMP) on teacher professional competence is 0.552. It can be seen that each variable has a significance value greater than 0.05 (sig  $> 0.05$ ). It shows that all research variables are linear.

## CONCLUSION

Based on the results of data analysis and discussion that have been described in the previous chapters, it can be concluded that the research on the availability of facilities and infrastructure and the participation of Physical Education, Sports and Health teachers in Teacher Deliberation (MGMP) on the performance and professional competence of junior high school teachers in Sorong City, South West Papua, is 55.1%. These results show that the conditions of the variables examined are included in the low category.

## REFERENCES

- 1) Abdullah, A. (2020). Relationship the Work Culture and Training Programs Within Performance. *International Journal of Progressive Sciences and Technologies (IJPSAT)*, 20(1). <http://ijpsat.ijsht-journals.org>
- 2) Arafat, M. H., & Fauzan, I. N. (2018). PEMANFAATAN HARTA WAKAF (Analisis Komparatif UU No 41 Tahun 2004 dengan KHI Pasal 215 dalam Perspektif Hukum Islam). *Istidal: Jurnal Studi Hukum Islam*, 5(2), 141-152.
- 3) Kasmir. (2018). *Manajemen Sumber Daya Manusia*. Depok: Rajawali Pers.
- 4) Marliya, Fitria. H, Nurkhalis (2020) The Influence of Infrastructure Facilities and Work Environment on Teacher Performance in Public Junior High Schools in West Prabumulih District. DOI:10.37985/jer.v1i3.23.
- 5) Marliya, Fitria. H, Nurkhalis (2020) The Influence of Infrastructure Facilities and Work Environment on Teacher Performance in Public Junior High Schools in West Prabumulih District. DOI:10.37985/jer.v1i3.23.
- 6) Novita. (2017). Pengaruh Kepemimpinan Dan Kompensasi Terhadap Kinerja Karyawan (Studi Kasus Pekerja Proyek Pada PT. ARILIUM). *JIMF (Jurnal Ilmiah Manajemen Forkamma)*. ISSN (print): 2598-9545 & ISSN (online): 2599-171X. Vol. 1, No. 3, Mei 2018.

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- 7) Pratama, D. Y. (2019). Survei sarana prasarana pendidikan jasmani olahraga dan kesehatan SD Negeri Se-Gugus 1 di Kecamatan Wonoayu Kabupaten Sidoarjo. *Jurnal Pendidikan Olahraga dan Kesehatan*, 7(3).
- 8) Sugiyono (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung : Alfabeta.
- 9) Suharsaputra. (2018). *Supervisi Pendidikan*. Bandung: PT refika Aditama. DOI:10.37985/jer.v1i3.23.
- 10) Sulami, T. R., Syukri, M., & Mesiono, M. (2021). Upaya Kepala Madrasah dalam meningkatkan sarana dan prasarana pendidikan di MTs Al-Hasanah Medan. *Jurnal Fadillah: Manajemen Pendidikan Islam & Umum*, 1(3). <http://repository.uinsu.ac.id/id/eprint/12693>.
- 11) Utami, I. T. (2020). Pengaruh fasilitas belajar terhadap prestasi belajar mahapeserta didik Akademi Sekretari Budi Luhur pada mata kuliah korespondensi Indonesia. *Jurnal Serasi*, 18(2), 13-23. DOI: <http://dx.doi.org/10.36080/js.v18i2.1176>.



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## Willingness to Pay for Conservation in Moyo Satonda National Park, Indonesia: Sumbawa & Dompu Regencies



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**ABSTRACT:** Moyo Satonda National Park (MSNP) is one of the attractions in NTB, Indonesia that needs attention for conservation. A contingent valuation method of survey was conducted to estimate the conservation value of MSNP and to elicit the willingness to pay among respondents. Through the random survey, the estimated mean of willingness to pay for conservation fee per respondent was IDR 7.81. With the number of visitors of 4000 in year 2022, it is estimated that there is an additional IDR 31,240 (2.03 USD) that could be used for the improvement in environmental conservation. This study shows that contingent valuation method (CVM) is a useful tool to guide decision makers in policy purposes of natural resources management of protected area in developing countries.

**KEYWORDS:** Contingent Valuation, National Park, Willingness to Pay

### 1. INTRODUCTION

The conservation of natural resources is a critical aspect in maintaining the ecological balance and sustainability of any region. It is widely accepted that biodiversity loss and poverty are linked problems and that conservation and poverty reduction should be tackled together. However, success with integrated strategies is elusive. There is sharp debate about the social impacts of conservation programs and the success of community-based approaches to conservation (Adams et al., 2004). Underpinning conservation policy (regulatory decisions) and practice (on-the-ground decisions) with rigorous scientific evidence can be vital for efficiently solving environmental problems (Pullin & Knight 2001; Sutherland et al. 2004). There are many barriers to using science to inform conservation policy and practice. Conservation scientists wishing to produce management-relevant science must balance this goal with the imperative of demonstrating novelty and rigor in their science (Cook et al., 2013). Protected areas throughout the world are key for conserving biodiversity, and land use is key for providing food, fiber, and other ecosystem services essential for human sustenance (Defries et al., 2007).

The Ministry of Environment and Forestry (LHK) of Indonesia, has designated Moyo and Satonda Islands on Sumbawa Island, as National Parks. Currently, West Nusa Tenggara (NTB) Province has three National Parks. This determination is in accordance with the Decree of the Minister of Environment and Forestry of the Republic of Indonesia, number SK.901/MENLHK/SETJEN/PL.2/8/2022, concerning changes to the main function of the forest area from the Moyo island hunting park area, the Moyo island marine nature tourism park and the natural tourism park on the island of Satonda, which became the Moyo Satonda National Park in Sumbawa and Dompu Regencies, NTB Province. The area is approximately 31,200.15 Hectares despite its importance, MSNP faces challenges such as habitat degradation, introduced species, and insufficient funding allocated towards its conservation. Therefore, sustainable financing mechanisms must be identified to adequately support the park's conservation efforts (Hernawardi., 2022). Willingness to pay (WTP) is a widely used concept in the field of environmental economics to estimate the monetary value that individuals place on the preservation of environmental goods and services (Arrow et al., 1993); (Hanley et al., 2009). The contingent valuation method (CVM) has been employed extensively as a tool for estimating WTP for various non-market goods, including national parks and biodiversity conservation efforts (Mitchell & T. Carson, 2013); (Bateman & Großbritannien, 2002).

Several studies have successfully applied CVM to determine WTP for conservation measures in protected areas across different regions globally, (Gelcich et al., 2013); (Zhang et al., n.d.) & (C. Adams et al., 2007)..

Moyo Satonda National Park is one of the most visited national parks in Nusa Tenggara Barat (NTB). The parks and nature reserves highlight the park's natural heritage and serve as a major draw for NTB's burgeoning tourist economy. It is worthwhile for visitors to MSNP to experience the delightful feeling of a variety of stunning waterfalls, including the spectacular Mata Jitu Waterfall on

## Willingness to Pay for Conservation in Moyo Satonda National Park, Indonesia: Sumbawa & Dompu Regencies

Moyo Island. For the parks to become international destinations, the country and the parks must have a global image of being a premier destination for outdoor recreation and nature tourism. Significant natural resources, a high market profile, and a quality service industry are three prerequisites for effective utilization of the international market (Eagles, 2002).

MSNP has an entrance fee IDR 5000 for locals and IDR 35000 for international visitors, it has drawn 4000 tourists in 2022. The money received from the entrance fees is now controlled by the Conservation Bureau of West Nusa Tenggara and is utilized for the management and preservation of the national park, including wildlife and environmental protection. The entrance fee for Moyo Satonda National Park may not be enough to cover the cost of conservation and management due to several factors. These may include the park's large size and the need for specialized equipment and personnel for conservation efforts, the cost of maintaining and improving park infrastructure, and the possibility of natural disasters or other unforeseen events necessitating additional funding. Furthermore, the entrance price may not be enough to pay the costs of long-term conservation and management methods, such as research and teaching programs, being handled a nature reserve is classified as a nonmarketable good. It is extremely difficult to assign a monetary value to these nonmarket environmental products since there is no price structure in place for them. Meanwhile, some locals and international visitors are less conscious of national park protection because they did not have to pay any entrance fees. Following that, it is vital to persuade the people, the public, and other stakeholders of the importance of national park protection by assigning a monetary value to it (Eagles, 2002).

Hence, this study aims to employ the CVM to investigate the willingness to pay for conservation in Moyo Satonda National Park among respondents. Using a random survey, the mean WTP will be elicited, and an estimate of potential additional funds for environmental conservation will be proposed. Furthermore, this research intends to contribute valuable insights on the efficacy of CVM in informing policy decisions for protected area management in developing countries like Indonesia.

## 2. METHOD

The research was based on a random survey of 86 participants from the Moyo Satonda National Park (MSNP) in Sumbawa and Dompu Regencies, NTB Province, Indonesia. The data were collected from 86 respondents by conducting face-to face interviews using a structured questionnaire to assess their demographic characteristics and willingness to pay for conservation fees at the Moyo Satonda National Park (MSNP) in Sumbawa and Dompu Regencies, NTB, Indonesia. Descriptive analysis is used to provide information on socioeconomic variables such as ages, education level, level of income, and gender of the respondents. In order to gain the first research objective, regression analysis is used because it shows the relationship between the dependent variable and independent variables. This method will allow the effect of independent variables, onto dependent variables, whether it has a positive or negative relationship, and revealing which factors (independent variables) affects WTP (dependent variable) the most. Furthermore, CVM is used to discover how the respondents' willing to pay for conservation of the park similar with second objective of this research. This approach is called an open ended question. The respondents will be asked generally how much they are willing to pay for conservation fee. All of these respondents showed their WTP for conservation.

## 3. RESULT AND DISCUSSION

### 3.1 Respondents Profiles

Descriptive analysis was performed to examine MSNP demographic and characteristic responses. All data would be expressed as a percentage (%) and frequency. Table 1 summarizes the demographic characteristics of respondents. Half of the respondents (54.6%) were male. More over half (62.7%) were single. The majority of respondents (50%) were between the ages of 20 and 29; the remaining age groups were 13-19 (11.6%), 30-39 (19.7%), and 40-49 (6.9%). The majority of answers (65.5%) were international, with the remainder (34.4%) being domestic. In terms of educational background, 58.1% possessed degrees. 11.6% of those polled have a diploma. The majority of responders (30.2%) were from either Mataram or Universitas of Indonesia students, while the remaining 18.6% were government employees. In terms of money, the bulk of tourists (93%) earned less than RP 5M while the remaining (14%) did not have any income.

Table 1: Respondents Profiles

Characteristics	Percentage(%)	N
<b>Gender</b>		
Male	54.6	47
Female	45.3	39
<b>Marital status</b>		
Single	62.7	54
Married	37.2	32
<b>Nationality</b>		

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Indonesia	34.8	30
International	65.1	56
<b>Age</b>		
13-19	11.6	10
20-29	50	43
30-39	19.7	17
40-49	6.9	06
>50	11.6	10
<b>Education Level</b>		
Master Degree/PhD	58.1	50
Bachelor Degree	24.4	21
Diploma	11.6	10
Secondary/Primary School	5.8	05
<b>Occupation</b>		
Self-employed	27.9	24
Government-servant	18.6	16
Student	30.2	26
Private-employed	23.2	20
<b>Monthly Income</b>		
<IDR5M	93	22
IDR5M-RP10M	45.3	36
IDR10M-RP30M	31.3	05
>IDR30M	4.6	14
Don't have any Income	14	09
<b>Members of any environmental organization</b>		
Yes	65.1	56
No	34.8	30

### 3.2 Linear Regression Analysis

The association between Willingness to Pay for Conservation and the independent factors (Demographics) was predicted using regression analysis. The achieved result is shown in Table 3. According to the Model Fit Measures in Table 3, the value of R Square is 0.913, indicating that the linear regression model explains 91.3% more than half of the behavior of the dependent variable. However, the remaining 8.7% is influenced by factors not included in this study.

According to the theoretical framework of this study, there is considerable evidence that WTP for conservation is positively impacted by education level, adversely by gender, and negatively by nationality. This finding is significant at the 1% and 10% levels. This indicates that when they spend more time learning (education Level), their willingness to pay (WTP) increases. More specifically, a one percent increase in years of schooling would raise WTP by 0.2013 percent on average. This outcome shows that it will expand their knowledge and may eventually have an influence on a reasonable person's thinking. This will usually mold their view and attitude in a more mature way. Since what they learn becomes ingrained in them as a person, the impact of education on them conduct is typically extremely substantial, particularly if it is aligned with their viewpoint, such as the WTP.

As a result, a negative connection between WTP and gender was discovered. The negative sign of the gender coefficient indicates that male respondents are more likely than female respondents to pay the WTP for conservation, with a 0.4685 percent difference in amount. Interestingly, a negative sign of nationality indicates that, on average, people from "Indonesia" have a lesser readiness to pay than those from the "International" group. However, no significant variations in WTP were detected among respondents based on marital status, occupation, or age.

**Table 3: Linear Regression**

Model Fit Measures			Overall Model Test			
Model	R	R <sup>2</sup>	F	df1	df2	p
1	0.955	0.913	138	6	79	< .001

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### Model Fit Measures

Model	R	R <sup>2</sup>	Overall Model Test			
			F	df1	df2	p

### Model Coefficients - WTP

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	0.4037	0.211	0.8236	0.0163	1.913	0.059
Gender	0.4685	0.203	0.8725	0.0644	2.308	0.024
Marital Status	0.7486	0.206	0.3387	1.1585	3.635	< .001
Nationality	0.0436	0.181	0.4037	0.3165	0.241	0.810
Education Level	0.2013	0.144	0.0855	0.4880	1.397	0.166
Occupation	0.5047	0.116	0.2741	0.7353	4.356	< .001
Age	0.3962	0.117	0.1635	0.6288	3.390	0.001

**Table 4: Public's WTP**

IDR	N	Percentage
1-2	4	4.6
3-4	11	12.7
5-6	16	18.64
7-8	23	26.7
9-10	10	11.6
11-12	07	8.1
13-14	04	4.6
15-16	06	6.9
17-18	02	2.3
18-19	02	2.3
>20	01	1.1

**Table 5: Public's WTP (Mean)**

Respondents(n)	Conservation fee(IDR)
86	7.81

**Table 6: Estimated Revenue from conservative Fee**

Year	Estimated additional revenue(IDR)
2022	31,240

#### 4. CONCLUSION

It can be inferred from this study that most the respondents are willing to pay for conservation fee at MSNP. The park possesses a majestic aura worthy to be conserve and protect so that future generation can continue to enjoy and appreciate its beauty. As indicated by the study, the results obtained in regression can be used input in the planning process and managerial policy implication. The results of the study showed that the willingness to pay for conservation fee are in fact positively influenced by

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respondents' education levels while gender and nationality also play influential roles. This study revealed that respondents with a high education level are willing to pay more for conservation fee. Conservation Bureau of West Nusa Tenggara should implement education program, aimed to raise awareness among those who haven't visited. Respondents, who are well informed about the park, cultivate a more positive viewpoint and disposition regarding the conservation fee, the inclusion of this research strengthens the credibility of the management plans and the management team of the park can use it to justify any changes such as an increase in fee to the authorities and the public.

### 5. AUTHORS' BIOGRAPHY

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### REFERENCES

- 1) Adams, W. M., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., Roe, D., Vira, B., & Wolmer, W. (2004). Biodiversity conservation and the eradication of poverty. In *Science* (Vol. 306, Issue 5699, pp. 1146–1149).
- 2) Pullin, A. S., and T. M. Knight. 2001. Effectiveness in conservation practice: pointers from medicine and public health. *Conservation Biology* 15:50–54.
- 3) Sutherland, W. J., A. S. Pullin, P. M. Dolman, and T. M. Knight. 2004. The need for evidence-based conservation. *Trends in Ecology & Evolution* 19:305–308.
- 4) Cook, C. N., Mascia, M. B., Schwartz, M. W., Possingham, H. P., & Fuller, R. A. (2013). Achieving conservation science that bridges the knowledge-action boundary. *Conservation Biology*, 27(4), 669–678.
- 5) Defries, R., Hansen, A., Turner, B. L., Reid, R., & Liu, J. (2007). LAND USE CHANGE AROUND PROTECTED AREAS: MANAGEMENT TO BALANCE HUMAN NEEDS AND ECOLOGICAL FUNCTION. In *Ecological Applications* (Vol. 17, Issue 4).
- 6) Hernawardi (2022, Agustus 26). Pulau Moyo dan Satonda ditetapkan jadi Taman Nasional. Gatra.com. <https://www.gatra.com/news-550897-regional-pulau-moyo-dan-satonda-ditetapkan-jadi-taman-nasional-di-ntb.html>
- 7) Arrow, K., Solow, R., Portney, P. R., Leamer, E. E., Radner, R., & Schuman, H. (1993). *Report of the NOAA Panel on Contingent Valuation*.
- 8) Hanley, N., Barbier, E., & Barbier, E. (2009). *Pricing nature: cost-benefit analysis and environmental policy*.
- 9) Mitchell, R. C., & T. Carson, R. (2013). Using Surveys to Value Public Goods: The Contingent Valuation Method. *Using Surveys to Value Public Goods: The Contingent Valuation Method*, 1–463.
- 10) Bateman, I., & Großbritannien, D. of T. (2002). *Economic valuation with stated preference techniques: a manual*.
- 11) Gelcich, S., Amar, F., Valdebenito, A., Castilla, J. C., Fernandez, M., Godoy, C., & Biggs, D. (2013). Financing marine protected areas through visitor fees: Insights from tourists willingness to pay in Chile. *Ambio*, 42(8), 975–984. <https://doi.org/10.1007/S13280-013-0453-Z>
- 12) Zhang, L., Reviews, J. G.-R. and S. E., & 2016, undefined. (n.d.). Exploring the effects of international tourism on China's economic growth, energy consumption and environmental pollution: Evidence from a regional panel analysis. *Elsevier*. Retrieved September 19, 2023.
- 13) Adams, C., Seroa Da Motta, R., Arigoni Ortiz, R., Reid, J., Aznar, C. E., Antonio, P., & Sinisgalli, A. (2007). The use of contingent valuation for evaluating protected areas in the developing world: Economic valuation of Morro do Diabo State Park, Atlantic Rainforest, São. *Elsevier*. <https://doi.org/10.1016/j.ecolecon.2007.09.008>
- 14) Eagles, P. F. J. (2002). *Trends in Park Tourism: Economics, Finance and Management*1.



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## Measuring Sustainable Development: A Weighting Approach to Sustainable Development Indicators



Leonidas Mindrinos<sup>1</sup>, Panagiotis Panagiotopoulos<sup>2</sup>

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**SUMMARY:** The concept of sustainable development, in recent years if not decades, has been introduced into all individual forms of development regardless of sector or economy. It has been realized internationally that when development does not become sustainable it will soon cease to exist.

In previous years, there have been attempts to measure development and sustainability mainly by the United Nations but also by many scholars. This process resulted in the construction of 50 main and 46 secondary indicators for sustainable development in 2007, which differ from the indicators that determine the percentage of achievement of the 17 Sustainable Development Goals as set in 2015.

In previous works (Panagiotopoulos et al. 2022) an attempt was made to categorize the 96 Sustainable Development indicators of the U.N. according to Maslow's pyramid of needs and Bossel's indicator categories. With this combination, the pyramid of sustainable development was formed, in which the individual indicators are distributed. The purpose of this categorization was to investigate the contribution of certain economic aspects of human life to sustainable development based on the individual indicators as well as its extent within the categories of the pyramid. Schematically, the pyramid assists in visualizing the contribution to sustainable development of the subject being examined.

From the above correlation and the corresponding categorization, an attempt is made to give weight to each indicator with the ultimate goal of creating a matrix of performance of specific scores for the objects under consideration, always in relation to sustainable development. It is reported that the specific way of scoring differs from the way of measuring states' sustainable development according to the United Nations (U.N. 2022).

**KEYWORDS:** Sustainable development, indicators, Sustainable development pyramid, weight.

### INTRODUCTION

For several decades now, the need for a shift to sustainable development has been seen in terms of the operation and formation of cities (Vardopoulos, I., et al., 2023), the operation of society (Mitoula, Astará and Kaldis, 2008) and of course of the economy (Panagiotopoulos, P., et al. 2022 (2)), both locally and globally, (Wise, & Perić, 2017, Mingaleva, et al., 2017). For these reasons, a coordinated systematic effort is being made mainly by the United Nations but also by independent researchers, in order to define sustainable development, to set limits, to include it in a framework of indicators so that it can finally be measured as well as for each researcher to be able for example to compare the degree of sustainable development and the status of each country.

According to the above, sustainable development indicators were created by the United Nations (U.N. 2007) in order to make the term sustainability tangible, while a framework of goals for sustainable development in 2030 was finally formed (UN, 2015, 2017). Based on these goals, the United Nations publishes an annual report that outlines the score or percentage out of 100 that each country receives regarding the achievement of these goals. The performance of the score, however, does not seem to be based on any weighting criterion based on the individual indicators, but the calculation is done as a whole.

It is considered necessary, as the next step in the effort to measure sustainable development, to assign weight to each sustainable development indicator. At this point, in order to see the theoretical effect of the individual indicators of sustainable

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development, it is deemed necessary to examine primarily the indicators of sustainable development of 2007 and not the indicators that evaluate the goals set for 2030, following their prioritization by the research of Panagiotopoulos, P., et al. 2022.

### HIERARCHY OF SUSTAINABLE DEVELOPMENT INDICATORS

The purpose of prioritization is the satisfaction of the needs of man and his society with priority given to the basic needs proceeding towards the secondary importance needs. In order to achieve sustainability in development, development strategies and actions should be set in three main areas and in six individual operating systems of human social life. This is also the reason why the prioritization was done according to: a) Maslow's pyramid of needs (Maslow, 1943), b) Bossel's categories of sustainable development indicators (Bossel, 1999) and c) the indicators for the sustainable development of the United of Nations (U.N. 2007), alongside the triptych that distinguishes the concept of sustainability, economy, society and environment (Panagiotopoulos et al. 2022).

This is how the three pillars of sustainable development<sup>3</sup> to which the six subsystems of Bossel correspond (grouped into three) are presented, and by extension the inclusion of the groups of indicators of the United Nations in these subsystems.

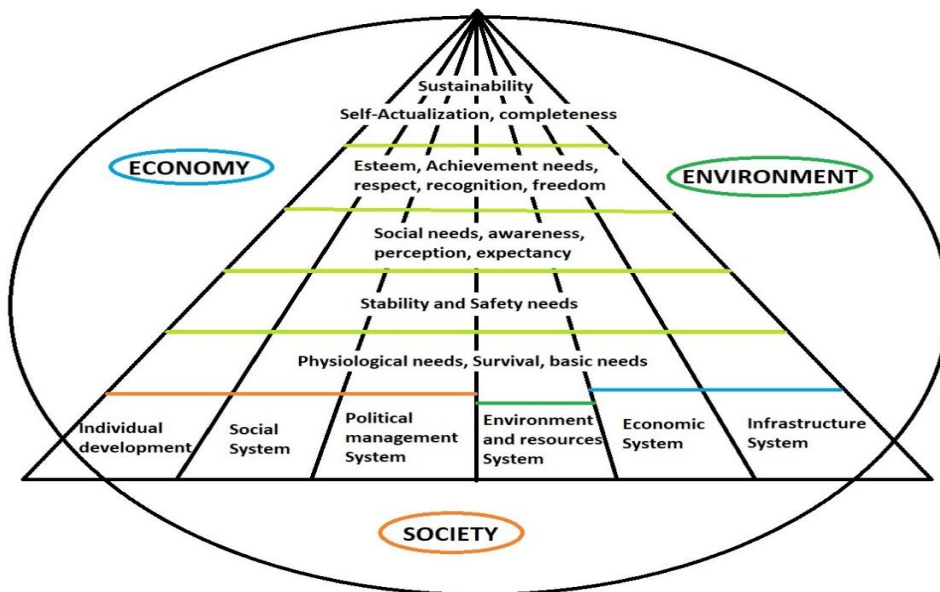


Figure 1 Three different colors orange, green and blue for the three pillars related to six subsystems

Subsequently, an attempt to link the five levels of needs, with social criteria, in relation to the 96 (50 basic and 46 secondary) indicators of sustainable development (United Nations, 2007) was presented in the said study, in order to achieve a hierarchical connection between them. The indicators and criteria are surrounded and supported by the three pillars of sustainable development as well as they act and operate within this framework (Figure 1).

After coding the United Nations indicators<sup>4</sup> for sustainable development, they were categorized according to Bossel's six-level categorization (1999) and the corresponding categories of Maslow's pyramid (1943). This mapping is illustrated in Figure 2.

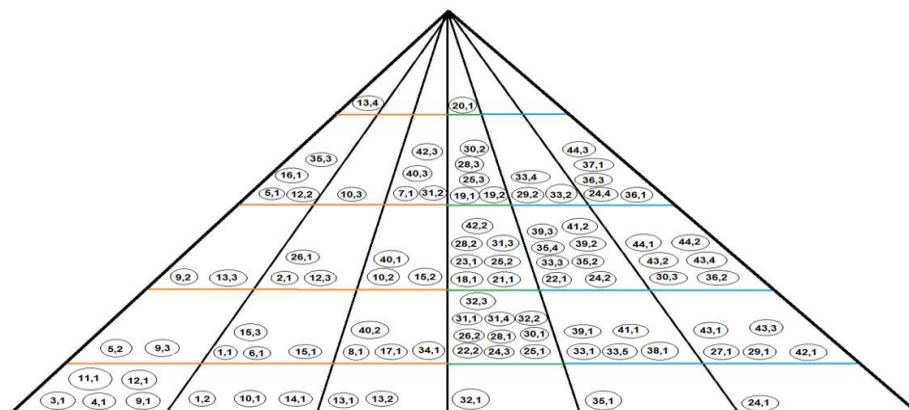


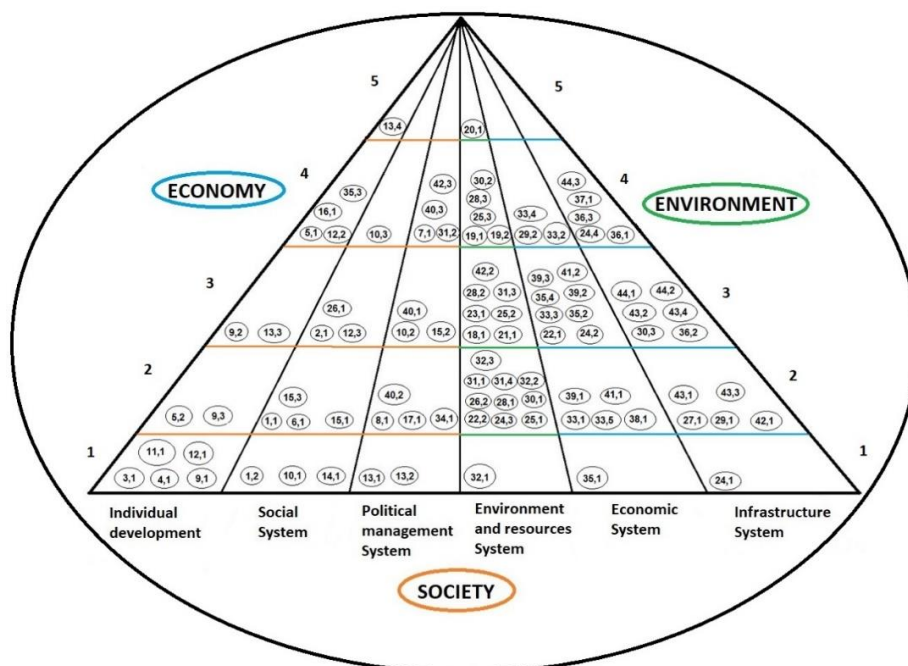
Figure 2 The indicators within the Bossel's six-level categorization

<sup>3</sup> Environment, Economy, Society

<sup>4</sup> The categorization is presented in the appendix where the 96 indicators are recorded in detail.

## Measuring Sustainable Development: A Weighting Approach to Sustainable Development Indicators

The numbers in each category represent the corresponding sustainable development indicator as listed in the appendix. Accordingly, the five levels of needs represent: 1) survival, psychological and basic needs, 2) stability needs, 3) social needs, awareness, perception and expectation, 4) needs for achievement of goals, recognition, respect and 5) Self-actualization, sustainability, integration for the individual and by extension for society respectively. In this way, the final shape of the pyramid of sustainable development is formed as below (Figure 3).



**Figure 3 Sustainable development Pyramid**  
Pyramidal schematic representation of the categorization of indicators

The above pyramid diagram of indicator categorization aims at the gradual evolution of the development of individual indicator subjects in order to finally be optimized until bottom-up sustainable development occurs in each category or group which is under improvement.

### OPERATING FRAMEWORK OF SUSTAINABLE DEVELOPMENT INDICATORS

Sustainable development is a pursuit that, in order to be achieved, certain conditions must be met. These conditions are calculated and illustrated in the form of indicators. Therefore, the fulfillment of each indicator contributes to the achievement of sustainable development. However, the question that arise is to what percentage is the requirement of each indicator fulfilled and with what weight does each indicator contribute to the whole? These are exactly the questions that this paper is called upon to answer. However, the achievement of sustainable development at the global level requires that the states and primarily the regions have managed to be in a state of sustainable local development (Nijkamp, Laschuit and Soeteman, 1991), with the reverse being extreme and even utopian.

Many human activities of a different nature contribute to the goal of sustainable local development. Examples are major infrastructure projects (Mitoula, R., Papavasileiou, A., 2023), alternative tourism (Panagiotopoulos, P., et al. 2022 (2)), urban reshaping (Vardopoulos, I., et al., 2023) and others. Since 2016, there has been an intense and collective effort to achieve sustainable development under the umbrella of the United Nations and specifically through Agenda 2030 (U.N. 2015) which sets goals, measurable reference values as well as proposes a methodology for measurement and information feedback regarding the extent to which it is being achieved through the 17 goals it established. In this direction, all U.N. member states are called to act in specific ways and in specific directions in order to achieve sustainability in development (Mitoula, 2006). As pointed out above, such effort should indeed be collective and not individual. Something like this seems to be happening in recent years (2016 and after) as shown by the review of National Reports of the department of economic and social affairs (DESA, 2016-2019) of the U.N. and Greece also participated in this by sending a report in 2018.

It is important to ascertain the degree of sustainability and fulfillment of the sustainable development indicators of each place, region or country in relation to others and to what extent, these individually and ultimately collectively at the level of continents or federations, cover the requirements concerning the goal for sustainable development. After all, sustainable development in one place is not necessarily sustainable in another (Nijkamp and Ouwersloot, 1997), but depends on the place

## Measuring Sustainable Development: A Weighting Approach to Sustainable Development Indicators

itself and its state concerning its carrying capacity. This is another point that shows the need to give weight to the individual indicators. What is certain is that local regional sustainable development must ensure good living conditions for the local population of the region in the present and maintain them in the future, as well as this development must not contradict sustainable development at supra-regional level (Nijkamp, Laschuit and Soeteman, 1991). The regions, but also two places between them, differ on many levels and mainly on the level of natural resources, environment and productivity structure. These factors alone are enough for two different regions to need completely different sustainable development practices. Nevertheless, based on the contribution of each place to different indicators of sustainable development more or less, it is possible to derive an overall score which makes two completely different regions comparable as can be seen in the U.N. report 2022.

### SUSTAINABLE DEVELOPMENT PYRAMID AND INDICATORS WEIGHT

Considering the pyramid of sustainable development which correlates and combines Maslow's pyramid of needs, Bossel's categories of sustainable development indicators and the United Nations indicators (Figure 3), an attempt is made to give weight to the individual indicators in order to contribute the respective percentage in the total score. The weighting performance follows the logic of increased weighting at the lower levels of the pyramid, decreasing as the indicators move a level up. Corresponding importance to the weight of each indicator is whether it is primary or secondary, while the three pillars of sustainability are given the same weight.

Specifically, we aim to derive a quantitative interpretation for the 96 indicators effecting sustainable development. The goal is to assign to every indicator, described by  $x_k$ , a normalized weight function  $w_k$  for  $k = 1, \dots, 96$  such that

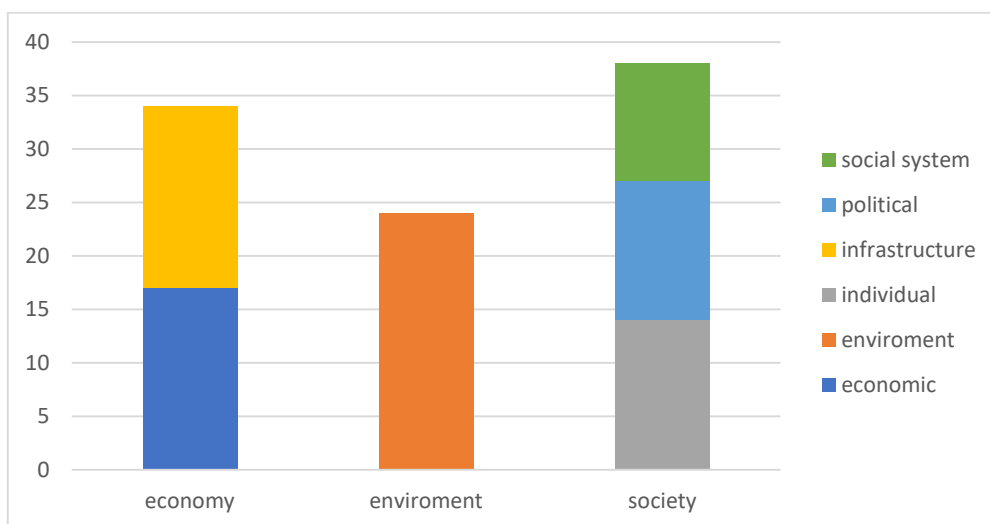
$$S = \sum_{k=1}^{96} w_k x_k \times 100$$

describes the total "score" (from 0 to 100) of a factor, like sport tourism, concerning its contribution on sustainability. We set

$$x_k = \begin{cases} 1, & \text{if the } k\text{th indicator is fulfilled} \\ 0, & \text{if the } k\text{th indicator is not fulfilled} \end{cases}$$

We compute the weights considering the following aspects:

- All three pillars (economy, environment and society) contribute equally.
- The type of the indicator (main or secondary) is important.
- The influence of an indicator on sustainable development depends on the level of needs (1 to 5). The effect of the level of needs depends also on the number of included indicators.



**Figure 4 Indicators allocation within the three pillars of Sustainable development within six different systems**

The above factors a, b and c will contribute to the weight function as follows. We set  $a = 1/3$  and we assume

$$b_k = \begin{cases} 1, & \text{if the } k\text{th indicator is main} \\ 1/2, & \text{if the } k\text{th indicator is secondary} \end{cases}$$

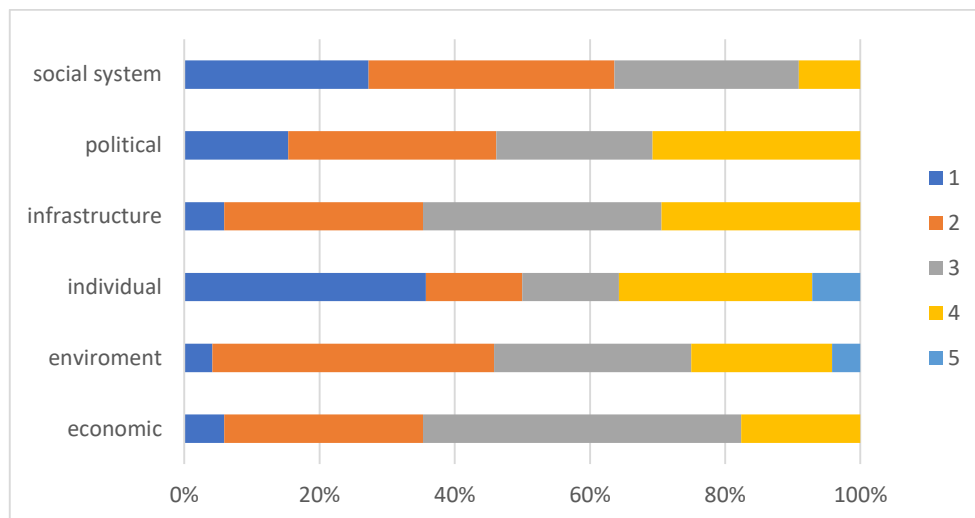
The lower the level of needs the bigger its effect. Thus, we set  $x\%$  the effect of the 5<sup>th</sup> level and we assume 5% more for each next level. Thus, we get

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$$5x + 50\% = 100\%$$

resulted in

Level of needs	1	2	3	4	5
Effect ( $e_k$ )	30%	25%	20%	15%	10%



**Figure 5 Indicators allocation within the six different systems of Sustainable development Within the five different levels**

However, as we observe in Figure 3 there are only two indicators in the 5<sup>th</sup> level. We cannot assign 10% importance to only two indicators. Thus, we consider also the number of indicators appearing in every level. We get

Level of needs	1	2	3	4	5
Indicator rate ( $r_k$ )	13/96	30/96	29/96	22/96	2/96

We propose to set

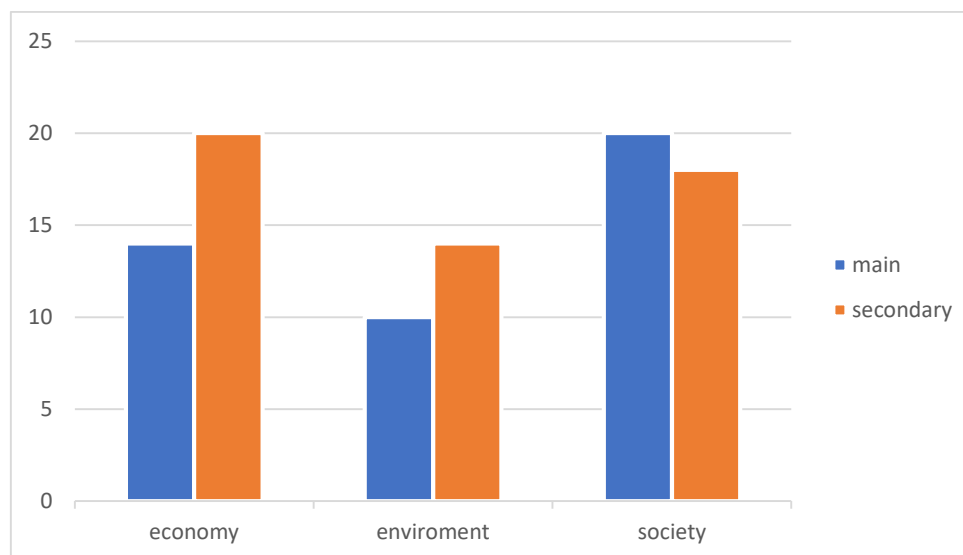
$$c_k = \frac{e_k + r_k}{2}, \text{ for } k = 1, \dots, 5$$

With this analysis we cannot assign a unique weight function to every indicator but we can assign one weight function to all indicators belonging to a specific cell of the following table. We rewrite the pyramid of [paper] in the following form (main shown in bold)

		Pillar		
		Economy	Environment	Society
Level of needs	1	<b>24.1, 35.1</b>	<b>32.1</b>	1.2, <b>3, 4, 9.1, 10.1, 11, 12.1, 13.1, 13.2, 14</b>
	2	<b>27, 29.1, 33.1, 33.5, 38, 39.1, 41.1, 42.1, 43.1, 43.3</b>	22.2, 24.3, <b>25.1, 26.2, 28.1, 30.1, 31.1, 31.4, 32.2, 32.3</b>	<b>1.1, 5.2, 6, 8, 9.3, 15.1, 15.3, 17, 34, 40.2</b>
	3	22.1, 24.2, 30.3, 33.3, <b>35.2, 35.4, 36.2, 39.2, 39.3, 41.2, 43.2, 43.4, 44.1, 44.2</b>	18, <b>21, 23, 25.2, 28.2, 31.3, 42.2</b>	<b>2, 9.2, 10.2, 12.3, 13.3, 15.2, 26.1, 40.1</b>
	4	24.4, <b>29.2, 33.2, 33.4, 36.1, 36.3, 37, 44.3</b>	<b>19.1, 19.2, 25.3, 28.3, 30.2</b>	<b>5.1, 7, 10.3, 12.2, 16, 31.2, 35.3, 40.3, 42.3</b>
	5	-	<b>20</b>	13.4

Let  $A_{ij}$ , for  $i = 1, \dots, 5$  and  $j = 1, 2, 3$  be the cell of the above table corresponding to the  $i^{\text{th}}$  level and the  $j^{\text{th}}$  pillar, and let  $M_{ij}$  and  $N_{ij}$  denote the number of main and secondary indicators appearing in this cell, respectively.

## Measuring Sustainable Development: A Weighting Approach to Sustainable Development Indicators



**Figure 6 Partition of Sustainable development indicators as main or secondary Within the three different pillars**

Then, the weight function is given by

$$W_{ij} = \frac{a c_i}{M_{ij} + \frac{1}{2} N_{ij}}$$

if the indicator in the  $A_{ij}$  cell is main and its half if the indicator is secondary. The above formula holds for all cases, except for  $A_{51}$ , where no economic indicators appear in level 5. Then,  $w_{51} = 0$ , and we set  $c_1 = c_1 + c_5$ , so that the contribution of economic indicators remains the 1/3 of the total. Following the above analysis, we obtain

$$W = \begin{bmatrix} 0.046 & 0.073 & 0.008 \\ 0.010 & 0.013 & 0.012 \\ 0.010 & 0.019 & 0.011 \\ 0.011 & 0.021 & 0.011 \\ 0 & 0.020 & 0.040 \end{bmatrix}$$

This means, for example, that the economic indicators 24.1 and 35.1 with level 1 will have 0.046 as weight since both are main. The following table presents a full list of all indicators with their type, pillar, sub-pillar, level and weight.

ID	TYPE	PILLAR	Sub-PILLAR	LEVEL OF NEEDS	Weight
1.1	main	society	social system	2	0,011719
1.2	secondary	society	social system	1	0,003819
2	main	society	social system	3	0,011157
3	main	society	individual	1	0,007639
4	main	society	individual	1	0,007639
5.1	main	society	individual	4	0,010532
5.2	secondary	society	individual	2	0,005859
6	main	society	social system	2	0,011719
7	main	society	political	4	0,010532
8	main	society	political	2	0,011719
9.1	main	society	individual	1	0,007639
9.2	main	society	individual	3	0,011157
9.3	secondary	society	individual	2	0,005859
10.1	main	society	social system	1	0,007639
10.2	main	society	political	3	0,011157
10.3	secondary	society	social system	4	0,005266
11	main	society	individual	1	0,007639
12.1	main	society	individual	1	0,007639

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12.2	secondary	society	individual	4	0,005266
12.3	secondary	society	social system	3	0,005579
13.1	main	society	political	1	0,007639
13.2	main	society	political	1	0,007639
13.3	main	society	individual	3	0,011157
13.4	secondary	society	individual	5	0,020139
14	main	society	social system	1	0,007639
15.1	main	society	social system	2	0,011719
15.2	main	society	political	3	0,011157
15.3	secondary	society	social system	2	0,005859
16	secondary	society	individual	4	0,005266
17	main	society	political	2	0,011719
18	secondary	enviroment	enviroment	3	0,009298
19.1	main	enviroment	enviroment	4	0,021065
19.2	secondary	enviroment	enviroment	4	0,010532
20	main	enviroment	enviroment	5	0,020139
21	main	enviroment	enviroment	3	0,018596
22.1	secondary	economy	economic	3	0,004922
22.2	secondary	enviroment	enviroment	2	0,006696
23	secondary	enviroment	enviroment	3	0,009298
24.1	main	economy	infrastructure	1	0,046354
24.2	secondary	economy	economic	3	0,004922
24.3	secondary	enviroment	enviroment	2	0,006696
24.4	secondary	economy	infrastructure	4	0,005745
25.1	main	enviroment	enviroment	2	0,013393
25.2	secondary	enviroment	enviroment	3	0,009298
25.3	secondary	enviroment	enviroment	4	0,010532
26.1	main	society	social system	3	0,011157
26.2	secondary	enviroment	enviroment	2	0,006696
27	main	economy	infrastructure	2	0,010417
28.1	main	enviroment	enviroment	2	0,013393
28.2	secondary	enviroment	enviroment	3	0,009298
28.3	secondary	enviroment	enviroment	4	0,010532
29.1	main	economy	infrastructure	2	0,010417
29.2	main	economy	economic	4	0,01149
30.1	main	enviroment	enviroment	2	0,013393
30.2	secondary	enviroment	enviroment	4	0,010532
30.3	secondary	economy	infrastructure	3	0,004922
31.1	main	enviroment	enviroment	2	0,013393
31.2	secondary	society	political	4	0,005266
31.3	secondary	enviroment	enviroment	3	0,009298
31.4	secondary	enviroment	enviroment	2	0,006696
32.1	main	enviroment	enviroment	1	0,072569
32.2	secondary	enviroment	enviroment	2	0,006696
32.3	secondary	enviroment	enviroment	2	0,006696
33.1	main	economy	economic	2	0,010417
33.2	main	economy	economic	4	0,01149
33.3	secondary	economy	economic	3	0,004922
33.4	secondary	economy	economic	4	0,005745

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33.5	secondary	economy	economic	2	0,005208
34	main	society	political	2	0,011719
35.1	main	economy	economic	1	0,046354
35.2	main	economy	economic	3	0,009845
35.3	main	society	individual	4	0,010532
35.4	secondary	economy	economic	3	0,004922
36.1	main	economy	infrastructure	4	0,01149
36.2	secondary	economy	infrastructure	3	0,004922
36.3	secondary	economy	infrastructure	4	0,005745
37	secondary	economy	infrastructure	4	0,005745
38	main	economy	economic	2	0,010417
39.1	main	economy	economic	2	0,010417
39.2	secondary	economy	economic	3	0,004922
39.3	secondary	economy	economic	3	0,004922
40.1	main	society	political	3	0,011157
40.2	secondary	society	political	2	0,005859
40.3	secondary	society	political	4	0,005266
41.1	main	economy	economic	2	0,010417
41.2	secondary	economy	economic	3	0,004922
42.1	main	economy	infrastructure	2	0,010417
42.2	main	enviroment	enviroment	3	0,018596
42.3	secondary	society	political	4	0,005266
43.1	main	economy	infrastructure	2	0,010417
43.2	main	economy	infrastructure	3	0,009845
43.3	secondary	economy	infrastructure	2	0,005208
43.4	secondary	economy	infrastructure	3	0,004922
44.1	main	economy	infrastructure	3	0,009845
44.2	secondary	economy	infrastructure	3	0,004922
44.3	secondary	economy	infrastructure	4	0,005745

It is observed that the sum of all weights is one, as expected since we created a normalized weight function.

For example, the sport tourism influences (Panagiotopoulos et al. 2022) the following indicators (main indicators are marked with bold)

Sport Tourism		Pillar		
		Economy	Environment	Society
Level of needs	1	<b>35.1</b>	-	-
	2	<b>33.1, 38</b>	22.2, <b>28.1</b>	<b>8</b>
	3	-	-	<b>9.2, 12.3</b>
	4	<b>33.2</b>	25.3	<b>16, 35.3</b>
	5	-	-	-

resulting in

$$P_{ST} = (W_{11} + 2W_{21} + W_{41} + \frac{3}{2}W_{22} + \frac{1}{2}W_{42} + W_{23} + \frac{3}{2}W_{33} + \frac{3}{2}W_{43}) \times 100 = 15.36$$

which is higher compared to the ratio  $12/96 \times 100 = 12.5$  of the affected indicators. Of course, we will get the same score if we add the weights of the affected indicators in Figure 6.

### CONCLUSIONS

The search for the means by which there can be sustainable development and sustainability in a place, has led to the need to develop and record indicators of sustainable development in order to clarify how close or far a place is from achieving sustainable development. From the indicators given by the U.N., the relative scores of the countries arise in U.N.'s sustainable development

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report. With the above analysis, it is clear that the way of rendering the scores through the indicators of sustainable development, and by extension the indicators of the goals for sustainable development in 2030, probably need to be prioritized and given weight according to their importance concerning the society, the environment as well as the economy. In this paper, a sustainable, systematic separation of the indicators was presented in order to give them weight so that the scores of each place are more representative based on needs on the road to achieve sustainable development.

### REFERENCES

- 1) Panagiotopoulos, P., Mitoula, R., Georgitsogianni, E. & Theodoropoulou, E. (2022). The Contribution of Sports Tourism to Sustainable Development Based on Sustainable Development Indicators – The Case of Greece. *International Journal of Multidisciplinary Research and Analysis*, Volume 05, Issue 07, pp. 1666-1678. ISSN(print): 2643-9840, ISSN(online): 2643-9875, DOI: 10.47191/ijmra/v5-i7-10.
- 2) United Nations (2022). SUSTAINABLE DEVELOPMENT REPORT 2022, From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. published online, <https://www.sustainabledevelopment.report/reports/sustainable-development-report-2022/>
- 3) Vardopoulos, I., Ioannides, S., Georgiou, M., Voukkali, I., Salvati, L., Doukas, Y.E. (2023). Shaping Sustainable Cities: A Long-Term GIS-Emanated Spatial Analysis of Settlement Growth and Planning in a Coastal Mediterranean European City. *Sustainability* 2023, Volume 15, Issue 14, 11202. <https://doi.org/10.3390/su151411202>
- 4) Mitoula, R., Astara, O. & Kaldis, P. (2008). Sustainable development - concepts - international and European dimensions Athens: Rosili Publications.
- 5) Panagiotopoulos, P., Mitoula, R., Georgitsogianni, E. & Theodoropoulou, E. (2022). (2) Sports Activities as a lever for Tourism Development – Comparative Study 2016-2022, *International Sports Law Review Pandektis (ISLR/Pandektis)*, Vol. 14: 1-2, 2022, pp 151-162.
- 6) Wise, N. & Perić, M. (2017). Sports tourism, regeneration and social impacts: New opportunities and directions for research, the case of Medulin, Croatia. In *Tourism in the City* (pp. 311-320). Springer, Cham.
- 7) Mingaleva, Z., Sheresheva, M., Oborin, M. & Gvarliani, T. (2017). Networking of small cities to gain sustainability. *Entrepreneurship and Sustainability Issues*, 5(1), 140-156.
- 8) United Nations (2007). Indicators of Sustainable Development: Guidelines and Methodologies. in: *Economic & Social Affairs, Third Edition*, Oct. 2007, United Nations publication, New York, pages 99.
- 9) United Nations (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/post2015/transformingourworld>.
- 10) United Nations (2017). SDG Indicators, Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. published online, <https://unstats.un.org/sdgs/indicators/indicators-list/>
- 11) Maslow, A.H. (1943). A Theory of Human Motivation. in: *Psychological Review*, Vol. 50, No. 4, pp. 370-396.
- 12) Bossel, H., (1999). Indicators for Sustainable Development: Theory, Method, Applications. in: *A report to the Balaton Group*. Canada: Published by the International Institute for Sustainable Development.
- 13) Nijkamp, P., Laschuit, P. & Soeteman, F. (1991). Sustainable development in a regional system. in *Serie research memoranda*, Vrije Universiteit Amsterdam, Faculteit der Economische Wetenschappen en Econometrie, Number 00093, p. 32.
- 14) Mitoula, R., Papavasileiou, A. (2023). Mega infrastructure projects and their contribution to sustainable development: the case of the Athens Metro. *Economic Change and Restructuring* 56, 1943–1969 (2023). <https://doi.org/10.1007/s10644-023-09493-w>
- 15) Mitoula, R. (2006). Sustainable Regional Development in European Union & Reconstruction of the Greek Urban Environment, Ath. Stamouli Publications, Athens.
- 16) Department of Economy and Social Affairs (DESA), (2016-2019). Multi-stakeholder engagement in 2030 Agenda implementation: A review of Voluntary National Review Reports (2016-2019), pages 59.
- 17) Nijkamp, P. & Ouwersloot, H. (1997). A decision support system for regional sustainable development: the Flag model. in *Economic Modelling of Sustainable Development*, M. Hofkes and J. van den Bergh, Eds. Cheltenham: Edward Elgar, p. 28.
- 18) Meadows, D.H., Meadows, D.L., Randers, J. and Behrens III, W.W. (1972). *The Limits to Growth: a Report for the Club of Rome's Project on the Predicament of Mankind*. New York: Universe Books.
- 19) Mitoula, R. (2010). Local and regional sustainable development and the city in European Union of 2020, in *The new strategy's regional dimension: Europe 2020*, proceedings of the 16<sup>th</sup> scientific conference of the Greek Regionalists Association (Oct. 2010), pp. 107 - 114.



## Measuring Sustainable Development: A Weighting Approach to Sustainable Development Indicators

- 20) Brundtland, G.H. (1987). in "Our Common Future". Oxford University Press.
- 21) Nilashi, M., Rupani, P. F., Rupani, M. M., Kamyab, H., Shao, W., Ahmadi, H., ... & Aljojo, N. (2019). Measuring sustainability through ecological sustainability and human sustainability: A machine learning approach. *Journal of Cleaner Production*, 240, 118162.
- 22) Rosati, F. & Faria, L. G. (2019). Addressing the SDGs in sustainability reports: The relationship with institutional factors. *Journal of cleaner production*, 215, 1312-1326.
- 23) Spangenberg, J.H. (2004). Reconciling sustainability and growth: criteria, indicators, policies. in *Sustainable Development*, Vol. 12, Issue 2, John Wiley & Sons publication, pp. 74-86.
- 24) Dekleris, M. H. (2005). *Introduction to the Sustainable State: A Guide to 21st Century Politics*. 1st ed., Athens: Viosimos Kosmos Publications.
- 25) Porter, M. E. (1990). The competitive advantage of nations, *Harvard Business review*: March - April 1990. pp. 73 - 93.

### Appendix

1. Income poverty (2 indicators) - Proportion of population living below national poverty line (1.1) and Proportion of population below \$1 a day (1.2).
2. Ratio of share in national income of highest to lowest quintile (2.1).
3. Sanitation - Proportion of population using an improved sanitation facility (3.1).
4. Drinking water - Proportion of population using an improved water source (4.1).
5. Access to energy (2 indicators) - Share of households without electricity or other modern energy services (5.1) and Percentage of population using solid fuels for cooking (5.2).
6. Living conditions - Proportion of urban population living in slums (6.1).
7. Corruption - Percentage of population having paid bribes (7.1)
8. Crime - Number of intentional homicides per 100,000 population (8.1).
9. Mortality (3 indicators) - Under-five mortality rate (9.1), Life expectancy at birth (9.2) and Healthy life expectancy at birth (9.3).
10. Health care delivery (3 indicators) - Percent of population with access to primary health care facilities (10.1), Immunization against infectious childhood diseases (10.2) and Contraceptive prevalence rate (10.3).
11. Nutritional status - Nutritional status of children (11.1).
12. Health status and risks (3 indicators) - Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis (12.1), Prevalence of tobacco use (12.2) and Suicide rate (12.3).
13. Education level (4 indicators) - Gross intake ratio to last grade of primary education (13.1), Net enrolment rate in primary education (13.2), Adult secondary (tertiary) schooling attainment level (13.3), and Life long learning (13.4).
14. Literacy – Adult literacy rate (14.1).
15. Population (3 indicators) - Population growth rate (15.1), Dependency ratio (15.2) and Total fertility rate (15.3).
16. Tourism - Ratio of local residents to tourists in major tourist regions and destinations (16.1).
17. Vulnerability to natural hazards - Percentage of population living in hazard prone areas (17.1).
18. Disaster preparedness and response - Human and economic loss due to natural disasters (18.1).
19. Climate change (2 indicators) - Carbon dioxide emissions (19.1) and Emissions of greenhouse gases (19.2).
20. Ozone layer depletion - Consumption of ozone depleting substances (20.1).
21. Air quality - Ambient concentration of air pollutants in urban areas (21.1).
22. Land use and status (2 indicators) - Land use change (22.1) and Land degradation (22.2).
23. Desertification - Land affected by desertification (23.1).
24. Agriculture (4 indicators) - Arable and permanent cropland area (24.1), Fertilizer use efficiency (24.2), Use of agricultural pesticides (24.3) και Area under organic farming (24.4).
25. Forests (3 indicators) - Proportion of land area covered by forests (25.1), Percent of forest trees damaged by defoliation (25.2) and Area of forest under sustainable forest management (25.3).
26. Coastal zone (δύο δείκτες) - Percentage of total population living in coastal areas (26.1) and Bathing water quality (26.2).
27. Fisheries - Proportion of fish stocks within safe biological limits (27.1).
28. Marine environment (3 indicators) - Proportion of marine area protected (28.1), Marine trophic index (28.2) and Area of coral reef ecosystems and percentage live cover (28.3).
29. Water quantity (2 indicators) - Proportion of total water resources used (29.1) and Water use intensity by economic activity (29.2).

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30. Water quality (3 indicators) - Presence of faecal coliforms in freshwater (30.1), Biochemical oxygen demand in water bodies (30.2) and Wastewater treatment (30.3).
31. Ecosystem (4 indicators) - Proportion of terrestrial area protected, total and by ecological region (31.1), Management effectiveness of protected areas (31.2), Area of selected key ecosystems (31.3) and Fragmentation of habitats (31.4).
32. Species (3 indicators) - Change in threat status of species (32.1), Abundance of selected key species (32.2) and Abundance of invasive alien species (32.3).
33. Macroeconomic performance (5 indicators) - Gross domestic product (GDP) per capita (33.1), Investment share in GDP (33.2), Gross saving (33.3), Adjusted net savings as percentage of gross national income (GNI) (33.4) and Inflation rate (33.5).
34. Sustainable public finance - Debt to GNI ratio (34.1).
35. Employment (4 indicators) – Employment-population ratio (35.1), Labor productivity and unit labor costs (35.2), Share of women in wage employment in the non-agricultural sector (35.3) and Vulnerable employment (35.4).
36. Information and communication technologies (3 indicators) - Internet users per 100 population (36.1), Fixed telephone lines per 100 population (36.2) and Mobile cellular telephone subscribers per 100 population (36.3).
37. Research and development - Gross domestic expenditure on R&D as a percent of GDP (37.1).
38. Tourism - Tourism contribution to GDP (38.1).
39. Trade (3 indicators) - Current account deficit as percentage of GDP (39.1), Share of imports from developing countries and from LDCs (39.2), Average tariff barriers imposed on exports from developing countries and LDCs (39.3).
40. External financing (3 indicators) - Net Official Development Assistance (ODA) given or received as a percentage of GNI (40.1), Foreign direct investment (FDI) net inflows and net outflows as percentage of GDP (40.2) and Remittances as percentage of GNI (40.3).
41. Material consumption (2 indicators) - Material intensity of the economy (41.1), Domestic material consumption (41.2).
42. Energy use (3 indicators) - Annual energy consumption, total and by main user category (42.1), Intensity of energy use, total and by economic activity (42.2) and Share of renewable energy sources in total energy use (42.3).
43. Waste generation and management (4 indicators) - Generation of hazardous waste (43.1), Waste treatment and disposal (43.2), Generation of waste (43.3) and Management of radioactive waste (43.4).
44. Transportation (3 indicators) - Modal split of passenger transportation (44.1), Modal split of freight transport (44.2) and Energy intensity of transport (44.3).



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## The Effect of Omega-3 Fatty Acids on Malondialdehyde and Superoxide Dismutase Levels (Experimental Studies in Dyslipidemic Rat Models)



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**ABSTRACT:** Dyslipidemia is a lipid profile abnormality characterized by the increase of low-density lipoprotein (LDL), total cholesterol, triglycerides (TG), and a decrease of high-density lipoproteins (HDL). Dyslipidemia causes oxidative stress which can be shown by increasing levels of malondialdehyde MDA and decreased levels of antioxidants superoxide dismutase (SOD). This study aims to determine the effect of omega-3 fatty acids on MDA and SOD levels in dyslipidemic rat models. This study is experimental research with a post-test-only control group design. The research subject was 24 male Wistar rats were randomly divided into four groups, namely K0 (control), K1, K2, and K3. Dyslipidemia was induced by giving quail egg yolk 4ml/kg BW/day for 14 days and then followed by giving an omega-3 fatty acids dose of 36 mg/kg BW/day to the K2 group and dose of 72mg/kg BW/day to the K3 group for 14 days. The MDA statistical analysis used the One Way Anova and Post-hoc test and the SOD data analysis used the One-Way Anova and Tamnhane test. The MDA rate was higher in K2 compared to K1, and K3 with a value of  $p > 0.05$ . SOD levels in K2 increased compared to K1 and K3 with a  $p > 0.05$ . The administration of omega-3 fatty acids at doses of 36 mg/kg BW/day and 72 mg/kg BW/day for 14 days did not affect reducing MDA levels in dyslipidemic rats but the administration of omega-3 fatty acids at a dose of 36 mg/kg BW/day for 14 days increased SOD levels insignificantly.

**KEYWORDS:** Omega-3 fatty acids, MDA levels, SOD levels, dyslipidemia

### I. INTRODUCTION

Disturbances in the process of fat metabolism are characterized by changes in the lipid fraction in the blood known as dyslipidemia, which can be either increased or decreased.(1) Dyslipidemia refers to an abnormal condition in which there is an increase in blood levels of density of lipoprotein, total cholesterol, and triglycerides, while the level of high-density lipoprotein (HDL) decreases in the bloodstream. This condition is affected by the acceleration of oxidative reactions caused by stress, and vice versa can also accelerate the occurrence of oxidative stress. Oxidative stress arises due to excessive production of free radicals and lack of antioxidants in the bloodstream and has the potential to result in oxidation of lipids in cell membranes, impaired endothelial function, and increased inflammatory responses.(2) Stress-triggered oxidative responses trigger an increase in lipid peroxides which have an important role in promoting the development of atherosclerosis. Furthermore, this response also contributes to an increase in degenerative heart disease or stroke, accelerates the aging process, and supports the possibility of various disease mechanisms, including the risk of developing cancer.(3)

The National Health and Nutrition Examination Survey states that as much as 53% of the total American population, amounting to 105.3 million people, have abnormalities in lipid levels.(4) Dyslipidemia or abnormalities in lipid levels in the blood play a central role in the process of forming atherosclerosis in blood vessels, which triggers coronary heart disease and stroke.(5) Based on data from RISKESDAS, it was found that the incidence of coronary heart disease (CHD) reached 1.5%, and this rate increased with increasing age, especially in the 65-74 years age group which had the highest rate. Meanwhile, the number of individuals who have had a stroke in Indonesia is around 2.5%, or around 250 thousand people who have died, and the rest have experienced minor disabilities.(6)

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The need for natural supplements that act as antioxidants, such as omega-3 fatty acids in fish oil, is important to consider.(7) Omega-3 fatty acids can influence the formation of lipoproteins in the liver which are then channeled through the blood circulation to lower cholesterol levels.(8) Omega 3 can be called an enhancing factor in antioxidant defense against ROS.(9) Omega-3 fatty acids are obtained from food sources such as fish oil, which contain significant amounts of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), as well as from plant-derived alpha-linolenic acid(10). Research on the addition of omega-3 fatty acids to MDA and SOD levels in rats induced by dyslipidemia is relatively small. Therefore, it is important to conduct this research to explore the impact of giving omega-3 fatty acids on MDA (malondialdehyde) and SOD (superoxide dismutase) levels in dyslipidemic conditions. This study will include giving omega-3 doses at different levels, namely 36 mg/kg BW and 72 mg/kg BW, with a longer treatment period of 2 weeks.

### II. MATERIAL AND METHOD

This research is an in vitro experimental research method using Test Only Control Group Design. It is a research design where the results are observed after the treatment. This study used male Wistar rats as research subjects. This study was divided into four groups, the control group (K0), the control group induced dyslipidemia (K1), the treatment group that was given omega-3 fatty acid therapy at a dose of 36 mg/kg BW (K2), and the treatment group that was given Omega-3 fatty acid therapy at dose of 72 mg/kg BW (K3).

### III. RESULT

In this study, researchers found that omega-3 fatty acids were not able to reduce MDA levels but were able to increase SOD levels in male Wistar rats depending on the dose given (Table 1).

**Table 1. Results of Average Analysis, Normality Test, Homogeneity Test on TNF- $\alpha$  and MCP-1 Expression**

Variable	Group				Sig.(p)
	K0 N=5	K1 N=5	K2 N=5	K3 N=5	
<b>MDA (ppm)</b>					
Mean	0.989	1.030	1.324	1.069	
Std. deviation	0.193	0.095	0.223	0.157	
Shapiro Wilk	0.462*	0.763*	0.989*	0.398*	
Levene Test					0.382**
One-Way ANOVA					0.033***
<b>SOD (ng/ml)</b>					
Mean	2.825	2.128	2.762	1.637	
Std. deviation	0.185	0.510	0.627	0.283	
Shapiro Wilk	0.731*	0.419*	0.414*	0.222*	
Levene Test					0.019
One-way ANOVA					0.002***
<b>Information:</b> *Normal $p > 0.05$ **Homogeneous $p > 0.05$ ***Significant $p < 0.05$					

### The Effect of Omega-3 Fatty Acids on MDA Levels

Table 1 shows that the highest average levels of MDA were in the K2 group which was standard-fed and induced dyslipidemia and received omega 3 at a dose of 36/kg BW/day (1,324 ppm). Group K0 obtained the lowest MDA level (0.989 ppm) by given standard feed without being induced dyslipidemia, followed by group K1 by being standard fed and induced dyslipidemia but not given omega-3 fatty acid, then the K3 group was given standard feed and induced dyslipidemia and given omega-3 fatty acids at a dose of 72 mg/kg BW/day. One-way ANOVA test result showed significant differences in all groups with a p-value of 0.033 ( $p < 0.05$ ).

**Table 2. Differences in MDA levels between the two groups**

Group	p-Value
K0 vs K1	0.981
K0 vs K2	0.035*
K0 vs K3	0.884

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K1 vs K2	0.073
K1 vs K3	0.984
K2 vs K3	0.138

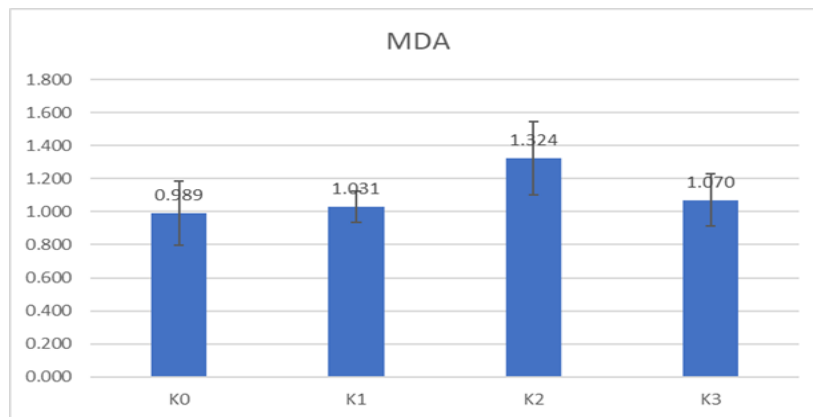


Figure 1. The Average of MDA levels between groups

Post Hoc test result (Table 2) shows that the MDA level in the K0 group was significantly different from the K2 group with a p-value of 0.035. While the K0 group did not differ significantly from the K1 group with a p-value of 0.981, the K0 group to the K3 group with a p-value of 0.884, the K1 group to the K2 group with a p-value of 0.073, the K1 group to the K3 group with a p-value 0.984, and group K2 to group K3 with a value of 0.138 (Figure 2). Based on the data above, it can be concluded that giving omega-3 fatty acids at doses of 36 mg/kg and 72 mg/kg has no effect on reducing MDA levels in male Wistar rats-induced dyslipidemia.

### The Effect of Omega-3 Fatty Acids on SOD Levels

The highest mean SOD levels in Table 1 were in the K0 group which was given standard feed without being induced dyslipidemia (2,825 ng/ml). The K3 treatment group was given doses of omega-3 fatty acids 72 mg/kg BW/day with induced dyslipidemia and obtained the lowest average SOD level (1,637 ng/ml), then followed successively by group K1 with standard feeding and induced dyslipidemia and group K2 with standard fed induced dyslipidemia and given omega-3 fatty acids at a dose of 36 mg/kg BW. One-way ANOVA test result showed significant differences in all groups with a p-value of 0.002 ( $p < 0.05$ ).

Table 3. The differences in SOD levels between the two groups

Group	p-Value
K0 vs K1	0.190
K0 vs K2	1.000
K0 vs K3	0.001*
K1 vs K2	0.533
K1 vs K3	0.292
K2 vs K3	0.071

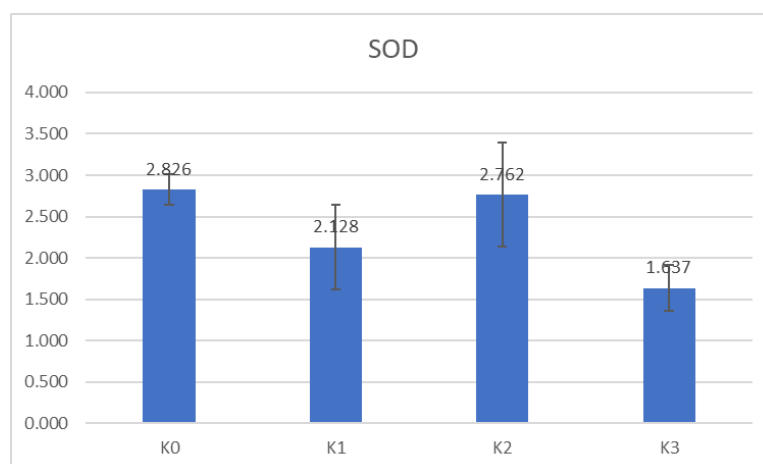


Figure 2. The average of SOD level between groups

## The Effect of Omega-3 Fatty Acids on Malondialdehyde and Superoxide Dismutase Levels (Experimental Studies in Dyslipidemic Rat Models)

Post hoc Tamhane test result (Table 3) shows there was no significant difference in SOD levels between K0 and K1 group with a p-value of 0.190 and 1.000, while there was a significant difference to group K3 with a p-value of 0.001 ( $p < 0.05$ ). There was no significant difference between the K1 group and the K2 group with p-values of 0.533 and 0.492. There was no significant difference between the K2 and K3 groups with a p-value of  $p=0.071$  ( $p < 0.05$ ). Based on the data above, it can be concluded that the administration of omega-3 fatty acids at a dose of 36 mg/kg/day has no significant effect on increasing SOD levels in male Wistar rats which was induced by dyslipidemia while the administration of omega-3 fatty acids at a dose of 72 mg/kg/day did not affect the increase in SOD levels.

### V. DISCUSSION

Dyslipidemia conditions result in increased accumulation of lipids in the liver, thereby reducing the body's ability to reduce blood fat(11). Accumulation of cholesterol in endothelial cells, hepatocytes, leukocytes, erythrocytes, and platelets triggers its production of reactive oxygen species (ROS) and reduces antioxidant defense mechanisms(12). This condition causes oxidative stress and affects body changes(13): Consumption of foods that are high in cholesterol and high in carbohydrates causes changes in lipid profile, oxidative stress, and inflammation.(14) Groups K1, K2, and K3 showed abnormal lipid profiles as a result of being given a high-fat diet using quail egg yolks of 4ml/kg BW/day by sonde for 14 days.

The examination result of MDA levels in the K1 group which was induced by dyslipidemia without giving omega-3 fatty acids increased compared to the K0 group. However, the K3 and K2 groups that were given a dose of omega-3 fatty acids actually experienced an increase in MDA levels as shown in Table 1. Dyslipidemia conditions will trigger lipid peroxidation. Lipid peroxidation is a reaction between free radicals and polyunsaturated fatty acids (polyunsaturated fatty acid, PUFA) which are present in cell membranes and LDL. Polyunsaturated fatty acids undergo peroxidation and then form products that are toxic to the body, Malondialdehyde (MDA).(15)

The MDA level of the group induced by dyslipidemia and receiving omega 3 fatty acids at doses of 36mg/kg BW and 72mg/kg BW actually increased as shown in Table 1. The effect of omega 3 on plasma lipids and lipoproteins can generally reduce triglyceride levels by 20-50% in healthy people, people with hypertriglyceridemia and diabetes. The PUFA class of fatty acids contained in fish oil are omega-3 fatty acids, especially EPA and DHA, which also play a good role in microsomal metabolism and act as antioxidants.(16) In this study, MDA did not experience a decrease in the possibility associated with the formation of MDA. MDA is formed through enzymatic and non-enzymatic pathways. The non-enzymatic pathway is a pathway through lipid peroxidation so that it is related to lipid levels. If the lipid profile can be improved, the MDA formed through the lipid peroxidation pathway will decrease. In addition to this, MDA is formed through an enzymatic pathway, namely the arachidonic acid pathway, which is strongly influenced by stress factors.(17,18) In research, the possibility of the formation of MDA through this enzymatic pathway cannot be controlled and inherited. In this study, the omega-3 fatty acids used were derived from fish oil. There is research that states that the consumption of fish oil increases the status of oxidative stress.(19) Another study stated that anchovy which is a group of fish oil has a high content of omega-3 fatty acids, namely 14 mg per gram with a composition of 5 mg of EPA and 9 mg of DHA. However, showing its use as an alternative source of omega-3 fatty acids is still rarely used.(19)

The results of an examination of SOD levels in the K2 group induced dyslipidemia by giving omega 3 fatty acids at a dose of 36 mg/kg BW/day experienced a significant increase compared to the control group (K0), the group that was fed without dyslipidemia induced (K1) and those given fatty acids omega 3 dose of 72 mg/kg BW/day (K3) as shown in Table 1. Feeding fat can induce ROS which will have an impact on lipid metabolism. An increase in the size and amount of adipose tissue leads to the production of pro-inflammatory cytokines, one of which is IL-6. This is caused by oxidative stress which will activate Bax in mitochondria so that release occurs cytochrome-c and decreased SOD production.(20) Omega-3 fatty acids play an important role in PPAR gene expression as an antioxidant.(19)

The SOD level in the group induced by dyslipidemia and the administration of omega 3 fatty acids at a dose of 36 mg/kg BW/day increased more than the dose of 72 mg/kg BW/day as shown in Table 1. Giving omega-3 fatty acids can increase gen nuclear factor erythroid 2-related factor 2 (NRF2) which plays a role in increasing the synthesis of endogenous antioxidants by increasing antioxidant enzymes such as SOD, glutathione peroxidase, and catalase.(21) Meanwhile, giving DHA that is too high from fish oil will cause inflammation and oxidative stress.(17) This could be related to the low SOD level in the K3 group who received 72 mg/kg BW/day of omega-3 fatty acids. The PUFA class of fatty acids contained in fish oil are primarily omega-3 fatty acids eicosapentaenoic (EPA) and docosahexaenoic acid (DHA) which have health effects on the body. EPA and DHA have 20 carbon atoms (C20) with 5 double bonds and 22 (C22) with 6 double bonds in their molecules. Omega-3 fatty acids are a group of polyunsaturated fatty acids (polyunsaturated fatty acid /PUFA) which has a double bond on the number 3 carbon atom. Dyslipidemia significantly increases ROS and reduces antioxidants such as SOD, and induces the secretion of proinflammatory

## The Effect of Omega-3 Fatty Acids on Malondialdehyde and Superoxide Dismutase Levels (Experimental Studies in Dyslipidemic Rat Models)

cytokines IL-1 $\beta$ , IL-6, and TNF which can increase hepatic parenchymal damage and induce apoptosis. The inflammatory response continues to increase with the release of proinflammatory cytokines, such as TNF, IL-6, and IL-1 $\beta$ , along with growth factors such as PDGF, CTGF, TGF- $\beta$  and IL-13. SOD is an enzyme that can suppress ROS with the mechanism of producing molecular oxygen from the oxidation of hydrogen peroxide, which is called disproportionation. SOD enzyme activity depends on the structural conformation of three essential domains, the heme moiety on the active site, the reduced NADPH bonds in the NADPH binding domain, and the secondary structure of the complex formed by linking and interlocking of long peptide loops during tetramerization. There is research that states that the consumption of fish oil increases the status of oxidative stress.(19) There is research that states that omega-3 fatty acids can optimize their function in increasing antioxidants when combined with vitamin E.(22) Researchers only examined cholesterol, LDL, triglycerides, and HDL in several samples after the end of the treatment so it was hoped that lipid profiles could be examined for all study samples after treatment.

### V. CONCLUSION

There was a significant difference in the mean MDA levels in the control group compared to the group of dyslipidemic rats which received omega3 fatty acids at a dose of 36mg/kgBW/day and there was a significant difference in the mean SOD levels in the control group compared to the group of dyslipidemic rats who received omega3 fatty acids at a dose of 72mg/kgBW/day

### ACKNOWLEDGEMENT

The authors declare no conflict of interest and no involvement of sponsors or funding for this research.

### REFERENCES

- 1) Wahjuni S. Dyslipidemia Causes Oxidative Stress Marked by Increased Malondialdehyde. Denpasar: Udayana University Press; 2015.
- 2) Krisnansari D, Kartasurya MI, Rahfiludin MZ. Vitamin E Supplementation and Lipid Profile of Dyslipidemia Sufferers: A Study on Hospital Staff Professor Doctor Margono Soekarjo Purwokerto. Providing Electrolyte Carbohydrate Liquid, Hydration Status and Fatigue in Female Workers. 2012;46(1):6–11.
- 3) Berawi KN, Agverianti T. The effect of physical activity on the formation of free radicals as a risk factor for atherosclerosis. Majority Journal. 2017;6(2):86–91.
- 4) Tóth PP, Potter D, Ming EE. Prevalence of lipid abnormalities in the United States: The National Health and Nutrition Examination Survey 2003-2006. J Clin Lipidol. 2012;6(4):325–30.
- 5) Lin CF, Chang YH, Chien SC, Lin YH, Yeh HY. Epidemiology of Dyslipidemia in the Asia Pacific Region. Int J Gerontol. 2018;12(1):2–6.
- 6) PERKENI. Guidelines for the Management of Dyslipidemia in Indonesia 2019. PB Perkeni. 2019;9.
- 7) Dr. Ir. Sri Wahjuni MK. Dyslipidemia Causes Oxidative Stress Characterized by Malondialdehyde. Book. 2015;
- 8) Hartono RI, Simanjuntak K. The effectiveness of omega-3 supplementation on total cholesterol levels in alloxan-induced Wistas strain rats (*Rattus norvegicus*). Syiah Kuala Medical Journal. 2022;10(3):26–32.
- 9) Heshmati J, Morvaridzadeh M, Maroufzadeh S, Akbari A, Yavari M, Amirinejad A, et al. Omega-3 fatty acids supplementation and oxidative stress parameters: A systematic review and meta-analysis of clinical trials. Pharmacol Res. 2019;149:104462.
- 10) Fonda G, Pranata R, Deka H. Role of Omega-3 Fatty Acids in Dyslipidemia and Cardiovascular Diseases. Indonesian Journal of Cardiology •. 2016;37(4):213–35.
- 11) Lee KS, Chun SY, Kwon YS, Kim S, Nam KS. Deep sea water improves hypercholesterolemia and hepatic lipid accumulation through the regulation of hepatic lipid metabolic gene expression. Mol Med Rep. 2017;15(5):2814–22.
- 12) Mittal M, Siddiqui MR, Tran K, Reddy SP, Malik AB. Reactive oxygen species in inflammation and tissue injury. Antioxid Redox Signal. 2014;20(7):1126–67.
- 13) Forrester SJ, Kikuchi DS, Hernandez MS, Xu Q, Griendling KK. Reactive oxygen species in metabolic and inflammatory signaling. Circ Res. 2018;122(6):877–902.
- 14) G Morabito , P Kucan MS. Endocrine , Metabolic & Immune Disorders Drug Targets. JOURNAL of food microbiology. 2015;15(1):1–2.
- 15) Lusiantari R, Pramaningtyas MD, Nurmasitoh T, Pattimura RH, Dewanti A. Shortening tends to increase aortic foam cell count and wall thickness in male Wistar rats. Universa Medicina. 2018;37(1):13.
- 16) Mulyanti. The Effect of Young Coconut Water (*Cocos Nucifera L*) on Parasitemia Index, Malondialdehyde Levels and

## The Effect of Omega-3 Fatty Acids on Malondialdehyde and Superoxide Dismutase Levels (Experimental Studies in Dyslipidemic Rat Models)

Hemoglobin Levels in Malaria. Diponegoro University. Diponegoro University Semarang; 2016.

- 17) Diana FM. Omega 3. Agro Food Ind Hi Tech. 2012;17(1):29–31.
- 18) Ayala A, Muñoz MF, Argüelles S. Lipid peroxidation: Production, metabolism, and signaling mechanisms of malondialdehyde and 4-hydroxy-2-nonenal. *Oxid Med Cell Longev*. 2014;2014.
- 19) Tsuyoshi Tsuduki THKNIITM. Long-Term Intake of Fish Oil Increases Oxidative Stress and Decreases Lifespan in Senescence-Cccelerated Mice. Elsevier [Internet]. 2011 [cited 2023 Sep 6]; Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0899900710001759>
- 20) Septiana SI, Puruhita N. EFFECT OF GIVING ANchovies (*Engraulis encrasicolus*) ON SPATIAL MEMORY OF SPRAGUE DAWLEY RATS AGED ONE MONTH. *Journal of Nutrition College*. 2016;4(1):8–13.
- 21) Hendrawati A. Protective Effect of Quercetin and Omega-3 Combination on Pancreatic  $\beta$  Cells in Type 2 Diabetes Mellitus Rats. *Pharmaciana*. 2017 May;7.
- 22) Lord Yesi. The Effect of Omega-3 Fatty Acid Supplements and Vitamin E on Placental Apoptosis MARKER Levels in White Mice (*Rattus Norvegicus*) Pre-Eclampsia Model. 2021.2016;5.



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## The Effect of Hypoxic Mesenchymal Stem Cell Secretome on TNF-A and MCP-1 Gene Expression



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**ABSTRACT:** Diabetes mellitus (DM) type 2 is a metabolic disorder with the occurrence of insulin receptor resistance and reduced ability of pancreatic  $\beta$ -cells to secrete insulin, there will be an increase in adipose tissue which causes hypertrophy and hyperplasia. This situation triggers inflammation involving the role of pro-inflammatory cytokines and chemokines such as TNF- $\alpha$  (Tumor Necrosis Factor-Alpha) and MCP-1 (Monocyte Chemotactic Protein-1). Cell-based therapies such as the administration of hypoxic mesenchymal stem cell secretome offer a new paradigm in the management of T2DM. This study aims to determine the effect of hypoxic mesenchymal stem cell (SSPM) administration on TNF- $\alpha$  and MCP-1 gene expression in STZ-induced obese DM rats. This research is experimental with a post-test-only control group design approach. The subjects of the study were 20 male Wistar rats which were randomly divided into 4 groups. Group K1 was given standard feed and distilled water. Group K2 subjects with obesity mellitus type 2 with 0.9% NaCl. Groups K3 and K4, subjects with type 2 obesity mellitus, were treated with secretome doses of 250  $\mu$ l and 500  $\mu$ l. The study was conducted at the Sultan Agung Stem Cell Research Institute Laboratory for 21 days by taking blood for examination of TNF- $\alpha$  and MCP-1 gene expression using the PCR method. The result showed that the lowest average TNF expression was in the K4 group (3.19 pg/ml) and the lowest mean MCP-1 expression was in the K4 group (1.57 %). One-way ANOVA test showed a significant difference in TNF- expression with a value of  $p=0.006$  and MCP1 expression showed a significant difference  $p=0.000$  ( $p<0.05$ ). The Administration of hypoxic mesenchymal stem cell (SSPM) secretome significantly reduced TNF- $\alpha$  and MCP-1 gene expression in STZ-induced obese DM rats.

**KEYWORDS:** Diabetes mellitus, TNF- $\alpha$ , MCP-1, SSPM

### I. INTRODUCTION

Type 2 diabetes mellitus (DM) is a long-term disease characterized by high blood sugar levels due to the body's inability to produce insulin.<sup>1</sup> Metabolic disorders with the occurrence of insulin receptor resistance and reduced ability of pancreatic  $\beta$ -cells to secrete insulin, there will be an increase in adipose tissue which causes hypertrophy and hyperplasia.<sup>2</sup> This situation triggers inflammation involving the role of pro-inflammatory cytokines and chemokines such as TNF- $\alpha$  (Tumor Necrosis Factor-Alpha) and MCP-1 (Monocyte Chemotactic Protein-1).<sup>3</sup> Pharmacotherapy and insulin injections for T2DM patients currently only reduce glycemic levels but cannot repair the pancreatic  $\beta$ -cell damage that occurs. Cell-based therapies such as the administration of hypoxic mesenchymal stem cell secretome offer a new paradigm in the management of T2DM.<sup>4</sup> Hypoxic mesenchymal stem cell (SSPM) secretome has benefits as immunosuppressors and immunomodulator which can improve the function of pancreatic  $\beta$  cells, there is still little research on hypoxic mesenchymal stem cell secretome on TNF- $\alpha$  and MCP-1 gene expression in type 2 DM obesity.<sup>5</sup> According to data International Diabetes Federation (IDF) in 2021 the prevalence of DM sufferers in the 536.6 million or 10.5% living with DM is expected to increase by 783.2 million or 12.2% of the world's population in 2045.<sup>6</sup> Meanwhile, based on IDF 2021 data, there has been an increase in diabetes sufferers in Indonesia where Indonesia ranks 5th in the world and 3rd in Southeast Asia with sufferers of 11.3% of the total age 20 to 79 years.<sup>6,7</sup> The Indonesian Basic Health Research which was carried out in 2018 collected data on DM sufferers in residents aged more than 15 years based on blood sugar examinations and found an increase in the prevalence of DM by 8.5% or around 20.4 million compared to 2013 which was 6.9%. The biggest increase in prevalence was in DKI Jakarta province, which was 3.4%.<sup>7,8</sup> The World Health Organization predicts an increase in the number of Type 2 DM

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patients in Indonesia from 8.4 million in 2000 to around 21.3 million in 2030 and this is predicted to continue to increase in the coming years.<sup>8</sup>

Mesenchymal stem cell secretome (SSPM) obtained from adipose tissue has a greater density compared to bone marrow.<sup>9</sup> These cells are one of the potential and effective candidates in modulating the inflammatory environment and immune cells because SSPM is capable of producing anti-fibrotic, immunomodulating, and anti-apoptotic factors.<sup>5,10</sup> Several studies have shown that SSPM at a dose of 40% from type 2 DM rats has a unique secretion with different angiogenic properties in reducing inflammation and improving pancreatic function.<sup>11</sup>

An imbalance between energy intake and energy used in physical activity will increase fat tissue deposits, resulting in obesity and accumulation of visceral fat.<sup>20</sup> The accumulation of visceral fat results in adipose hypertrophy and causes hypoxia in the endoplasmic reticulum of cells, adipocyte death, and MCP-1 infiltration. If this happens continuously it will increase the release of proinflammatory cytokines from MCP-1 such as TNF- $\alpha$  which will eventually result in local and systemic inflammation which will interfere with the process of insulin production.<sup>12,13</sup> Currently, the treatment of T2DM patients is more about lifestyle changes and the administration of oral anti-hyperglycemic drugs and insulin for the rest of their lives. This therapy only lowers glycemic levels but cannot completely reduce the causative factors of insulin resistance and does not repair pancreatic  $\beta$ -cell damage that occurs. Therefore, a better therapeutic approach for DMT2 that can increase insulin sensitivity and improve  $\beta$ -cell function will bring benefits to DMT2 sufferers. Research related to the ability to apply hypoxic SSPM in the process of repairing inflammation through MCP-1 and TNF- $\alpha$  to restore insulin sensitivity and repair pancreatic  $\beta$  cells in DMT2 is still not widely carried out. the TNF- $\alpha$  gene and MCP-1 in induced obese mice Streptozotocin (STZ).

### II. MATERIAL AND METHOD

This research is an in vitro experimental research method using Post-Test Only Control Group Design. It is a research design where the research results are observed after the treatment is complete. The research subject used male Wistar rats and was divided into four groups, the healthy control group which was standard-fed and given distilled water (K1), the group of subjects with obesity mellitus type 2 with 0.9% NaCl (K2), the group of subjects with obesity mellitus type 2 treated with a dose of 250  $\mu$ l secretome (K3), and the group of subjects with obesity mellitus type 2 was treated with a dose of 500  $\mu$ l secretome (K4). The Hypoxic Mesenchymal Stem Cell Secretome used in the study contains IL-10, VEGF, and PDGF factors obtained from the co-culture of SPM Umbilical Cord secretions.

### III. RESULT

In this study, the researchers found that the effect of hypoxic mesenchymal stem cell secretome administration on TNF- $\alpha$  and MCP-1 expression in STZ-induced obese rats in male rats of the Wistar strain depended on the dose given (Table 1).

**Table 1. Results of Average Analysis, Normality Test, Homogeneity Test on TNF- $\alpha$  and MCP-1 Expression**

Variable	Group				Sig.(p)
	K1 N=5	K2 N=5	K3 N=5	K4 N=5	
<b>TNF-<math>\alpha</math> expression</b>					
Mean	1.00	8.00	4.85	3.19	
Std. deviation	0.00	4.63	1.66	3.19	
Shapiro Wilk		0.644*	0.379*	0.418*	
Levene Test					0.003
One Way Anova					0.006***
<b>Up to IL-6 (ng/L)</b>					
Mean	1.00	7.04	2.65	1.57	
Std. deviation	0.00	5.86	1.73	1.36	
Shapiro Wilk	0.154	0.424*	0.379*	0.418*	
Levene Test					0.034
One Way Anova					0.000***
<b>Information: *Normal p&gt;0.05 **Homogeneous p&gt;0.05 ***Significant p&lt;0.05</b>					

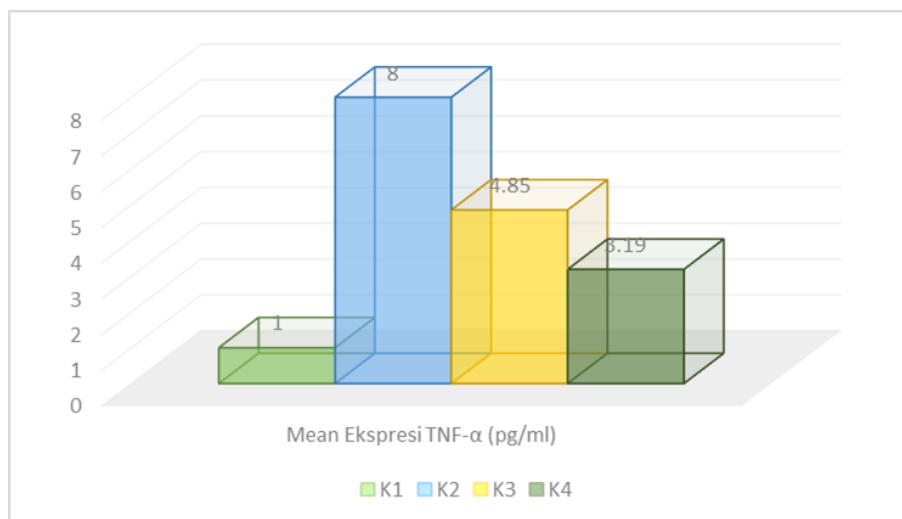
## The Effect of Hypoxic Mesenchymal Stem Cell Secretome on TNF-A and MCP-1 Gene Expression

Table 1 shows that the highest mean expression of TNF- $\alpha$  was in the second treatment group (K2) in STZ-induced obese rats without administration of hypoxic mesenchymal stem cell secretome. The control group (K1) with standard feed and distilled water showed the lowest average TNF- expression, followed by the fourth treatment group (K4) with hypoxic mesenchymal stem cell secretome administration with a dose of 500  $\mu$ l and the third treatment group (K3) with cell secretome administration hypoxic mesenchymal stem at a dose of 250  $\mu$ l in STZ-induced obese rats. TNF- $\alpha$  expression data based on the Shapiro-Wilk test showed a normal distribution with a p-value <0.05).

### The Differences in TNF- $\alpha$ Between Groups

**Table 2. Differences in TNF- $\alpha$  expression between the two group**

Group	p-Value
K1 vs K2	0.156
K1 vs K3	0.039*
K1 vs K4	0.423
K2 vs K3	0.761
K2 vs K4	0.405
K3 vs K4	0.764



**Figure 1. The average of TNF- $\alpha$  expression between groups**

The results of the Tamhane test in Table 2 and Figure 1 show that the expression of TNF- $\alpha$  in group K1 did not differ significantly from group K2 with a p-value of 0.156 ( $p > 0.05$ ) and group K4 with a p-value of 0.423 ( $p > 0.05$ ) but there was a significant difference to the K3 group with a p-value of 0.039 ( $p < 0.05$ ). Based on the data above, it can be concluded that the administration of hypoxic mesenchymal stem cell secretome at doses of 250  $\mu$ l and 500  $\mu$ l had a significant effect on TNF- $\alpha$  expression in STZ-induced obese rats so the hypothesis statement was accepted.

### The administration of MCP-1 Expression Between Groups

Table 1 shows that the highest mean expression of MCP-1 was in the second treatment group (K2) in STZ-induced obese rats without administration of hypoxic mesenchymal stem cell secretome. The control group (K1) with standard feed and distilled water showed the lowest average expression of MCP-1, followed by the fourth treatment group (K4) with hypoxic mesenchymal stem cell secretome administration with a dose of 500  $\mu$ l and the third treatment group (K3) with secretome administration hypoxic mesenchymal stem cells at a dose of 250  $\mu$ l in STZ-induced obese male Wistar rats. TNF- $\alpha$  expression data based on the Shapiro Wilk test showed a normal distribution with a p-value <0.05 and the homogeneity test using the Levene test was not homogeneous with a p-value <0.05, so data analysis used the parametric test One-Way ANOVA. The results of the One-Way ANOVA test showed significant differences in all groups with a p-value of 0.000 ( $p < 0.05$ ).

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## The Differences in IL-6 levels between the two group

Table 3. The Differences in IL-6 levels between the two group

Group	p-Value
K1 vs K2	0.075
K1 vs K3	0.176
K1 vs K4	0.382
K2 vs K3	0.134
K2 vs K4	0.103
K3 vs K4	0.935

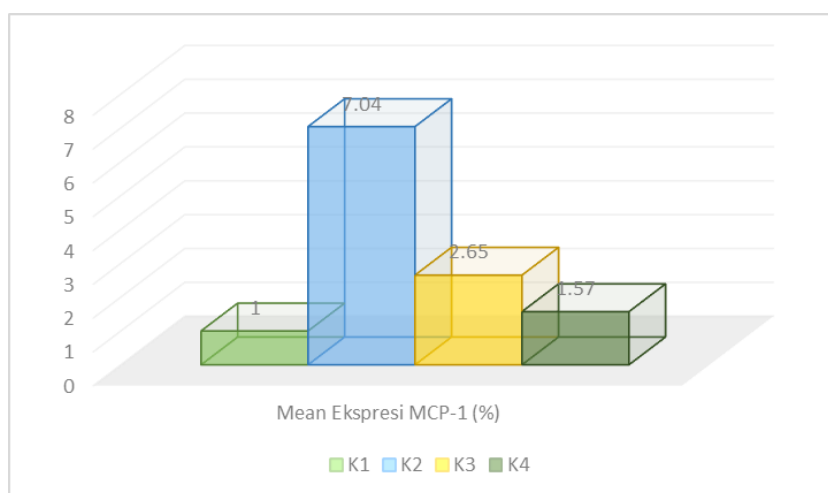


Figure 2. The average of MCP-1 expression between groups

The Tamhane test result in Table 3 and Figure 2 shows that the expression of MCP1 in group K1 did not differ significantly from group K2 with a p-value of 0.075 ( $p < 0.05$ ). Based on the data above, it can be concluded that the administration of hypoxic mesenchymal stem cell secretome at doses of 250  $\mu$ l and 500  $\mu$ l had a significant effect on MCP-1 expression in STZ-induced obese rats so the hypothesis statement was accepted.

## IV. DISCUSSION

The sample size used was 20 male Wistar rats which were divided into 4 groups of 5 rats each, namely the control group (K1) with standard feed and distilled water, the second treatment group (K2) in STZ-induced obese rats, the third treatment (K3) was given hypoxic mesenchymal stem cell secretome at a dose of 250  $\mu$ l in STZ-induced obese mice, and the fourth treatment group (K4) was given hypoxic mesenchymal stem cell secretome at a dose of 500  $\mu$ l in STZ-induced obese mice. This study used male Wistar rats because they are similar to humans in terms of physiology, anatomy, and many human symptoms and conditions that can be replicated in mice.

The desired mice are mice with high blood glucose levels (hyperglycemia) except for group 1 (normal control). Mice with hyperglycemia were treated with a high-fat diet for 30 days and continued with STZ induction. Fat can cause diabetes mellitus because insulin stimulates lipogenesis in adipose tissue provides acetyl-CoA and NADPH needed for fatty acid synthesis and provides glycerol which is involved in triacylglycerol synthesis. Diabetes mellitus (DM) is a metabolic disease characterized by hyperglycemia that occurs due to abnormalities in insulin secretion, decreased insulin receptor sensitivity, or both.<sup>1</sup> DM sufferers experience higher oxidative stress<sup>2</sup>, resulting in increased modification of lipids, DNA, and proteins in various tissues.

The results of the examination of TNF- $\alpha$  expression in the K2 group in STZ-induced obese rats without administration of hypoxic mesenchymal stem cell secretome experienced a significant increase compared to the control group (K1), the group that was given hypoxic mesenchymal stem cell secretome at a dose of 250  $\mu$ l (K3) and 500  $\mu$ l (K4) as in table 5.1. Streptozotocin was administered at a dose of 30 mg/kg BW intraperitoneally. Streptozotocin inhibits the Krebs cycle and reduces oxygen consumption in mitochondria, resulting in DNA damage that can activate poly ADP-ribosylation, which then results in suppressing cellular NAD<sup>+</sup>, further decreasing the amount of ATP, and finally inhibits insulin secretion and synthesis. Metabolic disorders with the occurrence of insulin receptor resistance and reduced ability of pancreatic  $\beta$ -cells to secrete insulin, there will be an increase in adipose tissue which causes hypertrophy and hyperplasia.<sup>2</sup> This situation triggers inflammation involving the role of pro-inflammatory cytokines and chemokines such as TNF- $\alpha$  (Tumor Necrosis Factor-Alpha).<sup>3</sup>

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TNF- $\alpha$  expression in obese rats induced by STZ and given hypoxic mesenchymal stem cell secretome at doses of 250  $\mu$ l (K3) and 500  $\mu$ l (K4) decreased as shown in Table 5.1. Administration of hypoxic mesenchymal stem cell secretome has been shown to inhibit damage caused by free radicals and can reduce TNF- $\alpha$  expression.<sup>9</sup> Hypoxic mesenchymal stem cell secretome is a potential and effective candidate in modulating the inflammatory environment and immune cells because it can produce anti-fibrotic, immunomodulating, and anti-apoptotic factors.<sup>5</sup>

The results of examining MCP-1 expression in the K2 group in STZ-induced obese rats without being given hypoxic mesenchymal stem cell secretome showed a significant effect compared to the group given hypoxic mesenchymal stem cell secretome at doses of 250  $\mu$ l (K3) and 500  $\mu$ l (K4) as in table 5.1. Type 2 diabetes mellitus is closely related to inflammatory conditions. One of the inflammatory markers in T2DM is chemokine monocyte chemoattractant protein-1 (MCP-1). Regulation of MCP-1 expression involves several mechanisms. Nuclear factor  $\kappa$ B (NF $\kappa$ B) binding to the MCP-1 promoter region is an important mechanism for MCP-1 transcription. Epigenetic modification is another potential mechanism for regulating MCP-1 expression.

MCP-1 expression in STZ-induced obese mice and given hypoxic mesenchymal stem cell secretome at doses of 250  $\mu$ l (K3) and 500  $\mu$ l (K4) increased as shown in Table 1. Administration of hypoxic mesenchymal stem cell secretome has been shown to inhibit damage caused by free radicals and can reduce TNF- $\alpha$  expression.<sup>9</sup> The secretome of hypoxic mesenchymal stem cells does not differentiate *in vivo* into skeletal tissue but instead functions as a paracrine, i.e., a secretory center at the site of injury. These stem cells are capable of producing proteins and cytokines for tissue repair, immunomodulatory substances that can suppress inflammation due to injury or rejection of tissue transplants by the body as well as proangiogenic properties that have potential for therapy. Further research still needs to be done using a high-fat diet dose according to the body weight of the rats and it is necessary to carry out a fat analysis examination after treatment.

## V. CONCLUSION

The administration of SSPM Hypoxia at a dose of 250  $\mu$ l and 500  $\mu$ l can decrease the TNF $\alpha$  and MCP-1 gene expression in obese male Wistar rats induced with STZ.

## ACKNOWLEDGEMENT

The authors declare no conflict of interest and no involvement of sponsors or funding for this research.

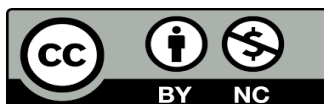
## REFERENCES

- 1) Anas Y, Rositasati R, Fitriani MR, Suharjo. Development of Type 2 Diabetic Mellitus Rat Experimental Animal Model due to Insulin Resistance Induced by Long Term Human Insulin. *J Farm Science and Clinical Farm*. 2015;12(2):16-23.
- 2) Akhavanpoor M, Wangler S, Gleissner CA, Korosoglou G, Katus HA, Erbel C. Adventitial inflammation and its interaction with intimal atherosclerotic lesions. *Front Physiol*. 2014;5 AUG(August):1-8. doi:10.3389/fphys.2014.00296
- 3) Yustisiani A, Andari D, Isbandiyah. The Effect of Giving Coffee on Reducing Blood Glucose Levels in Wistar Strain Diabetes Mellitus White Rats Type 2. *Santika Med*. 2013;9(1):38-45. doi:10.22219/sm.v9i1.4124
- 4) I Made Subhawa Harsa. THE EFFECT OF HIGH-FAT DIET ON BLOOD FAT PROFILE OF WHITE RATS (*Rattus norvegicus*). *Doctoral Science*. 2019;3(1):21-28.
- 5) Karussis D, Karageorgiou C, Vakinin-Dembinsky A, et al. Safety and immunological effects of mesenchymal stem cell transplantation in patients with multiple sclerosis and amyotrophic lateral sclerosis. *Arch Neurol*, 2010;67(10):1187-1194. doi: 10.1001/archneurol.2010.248
- 6) Sun H, Saeedi P, Karuranga S, Pinkepank M, Ogurtsova K, Duncan BB et al. IDF Diabetes Atlas: Global, regional, and country-level diabetes prevalence estimates for 2021 and projections for *Diab Res Clin Pr*. 2021.
- 7) Ministry of Health of the Republic of Indonesia. Stay Productive, Prevent and Overcome Diabetes Mellitus.; 2020.
- 8) PB. Perkeni. GUIDELINES FOR THE MANAGEMENT AND PREVENTION OF TYPE 2 DIABETES MELLITUS IN INDONESIA 2021.; 2019.
- 9) Ullah I, Subbarao RB RG. Human mesenchymal stem cells - Current trends and future prospective. *Biosci Rep*. 2015;35.
- 10) Miceli V, Bulati M, Iannolo G, Zito G, Gallo A, Conaldi PG. Therapeutic properties of mesenchymal stromal/stem cells: The need for cell priming for cell-free therapies in regenerative medicine. *Int J Mol Sci*. 2021;22(2):1-20. doi:10.3390/ijms22020763
- 11) Ribot J, Caliaperoumal G, Paquet J, Boisson-Vidal C, Petite H, Anagnostou F. Type 2 Diabetes Alters Mesenchymal Stem Cell Secretome composition and angiogenic properties. *J Cell Mol Med*. 2017;21(2):349-363. doi:10.1111/jcmm.12969
- 12) Item F. Visceral fat and metabolic inflammation: The portal theory revisited Visceral fat and metabolic inflammation: The portal theory revisited Division of Pediatric Endocrinology and Diabetology and Children Research's Centre, University

## The Effect of Hypoxic Mesenchymal Stem Cell Secretome on TNF-A and MCP-1 Gene Expression

Children's Hosp. 2012;13:30–9.

- 13) Rytka JM, Wueest S, Schoenle EJ, Konrad D. The Portal Theory Supported by Venous Drainage-Selective Fat Transplantation or/licenses/by-nc-nd/3.0/ for details. Diabetes. 2011; 60. doi:10.2337/db10-0697



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## Research on Organizational Fairness for Employees, Empirical Assessment at Vietnamese Non-Life Insurance Enterprises



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**ABSTRACT:** The goal of our research is to evaluate fairness in organizations. Find out the reality of fairness in non-life insurance businesses and how employees perceive this fairness. Propose our solutions to improve fairness in businesses. Using the general research method, we see that the issue of fairness in organizations has not received much research attention in Vietnam. Through evaluating documents, reports, and typical scientific articles in the world and Vietnam on fairness in organizations, we have built a theoretical basis for the article. In addition, the study also used a survey method for employees of non-life insurance enterprises in Vietnam. The survey results were compiled and analyzed to assess fairness factors in the business where they were working. Combining the theoretical basis built on the general research method and data obtained from the survey method, we have assessed the current situation of fairness in businesses and proposed solutions to improve the situation. High level of fairness. Building a culture of behavior in the organization such as direct dialogue, criticism, and listening, as well as building appropriate forms of language in communication. Develop detailed and clear rules, regulations, rewards, and penalties. This will help the treatment between superiors and subordinates be more regulated, more disciplined, and more transparent without abusing individualism. Create advancement opportunities for capable people. The above three options are our suggestions for the enterprise's human resources management department to improve fairness for employees.

**KEYWORDS:** Distributive justice; Fairness; Staff; Non-life insurance enterprises; Vietnam

### 1. INTRODUCTION

Since opening the market, Vietnam's economy has undergone strong changes. Our country's insurance market in general and the non-life insurance sector, in particular, are also increasingly expanding with the widespread participation of all economic sectors in the business of insurance services. Non-life insurance plays an important role in stabilizing Vietnam's economic system on many fronts and at the same time it provides security for individuals and families of participants, so it is supported by the state and organizations. Create preferential policies and reduce administrative procedures to help this market develop. In recent years, due to the increasing unemployment rate, non-life insurance businesses have begun to focus on human resource management policies with the goal of finding, discovering, selecting, developing and maintaining high-quality human resources for businesses. However, discovering and selecting resources is increasingly difficult due to a shortage of specialized personnel. Therefore, many businesses have chosen a new path, a new theory aimed at a resource ready for future development as well as ensuring current labor productivity, which is employee retention policies. It is possible to recruit highly specialized employees, but retaining them is even more difficult, so finding out the "thoughts and aspirations" of employees is considered a step in the management plan as well as building a good working environment. going along the same path as the development strategy of non-life insurance enterprises. Furthermore, it is an obvious fact that no company can achieve its goals without dedicated and long-term employees, and that is the resource that determines the success of an insurance business. The goal of this study is to evaluate fairness in organizations. How is the fairness situation in non-life insurance businesses assessed by employees and what are the solutions to improve fairness in businesses?

### 2. THEORETICAL BASIS

#### 2.1. Fairness at work

The National Employee Rights Institute has stated its "belief that fair treatment of workers is sound public policy and good business practice and that free access to comprehensive, unbiased information on human rights of employees" is essential (NERI, 1994).

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Handlon (2009) believes that fairness is a factor that affects employees' attachment to the organization. Author Dung (2015) evaluates Employees feel satisfaction when receiving training opportunities to develop personal capacity and the opportunity to be promoted in the organization. Equality in business is considered one of the issues affecting employees' decisions on whether they can work long-term with the company or not. They receive clear information and coordinate well in their work, which helps them to be more confident in completing their work. At the same time, when they receive Encouragement and support from superiors will make them strive harder for their work and want to contribute more to the organization. Equity theory is widely applied in the field of organizational management. Many studies have shown that employees care more about issues such as position and working position. The concept of fairness has been understood more broadly as everything in the workplace expressed through management decisions that are reasonable, equal, clear, and unbiased. One of the first studies on the issue of fairness in organizations was Adams (1963,1965). Organizational justice theory has created a useful framework for understanding individuals' attitudes toward work, work behaviors, and work practices, based on their attitudes toward work fairness in the working environment. Through the process of change, the theory of fairness has developed from one aspect of distributive justice to two aspects including distributive justice and procedural justice, and then to three aspects including distributive, procedural, and exchange justice, and finally the four dimensions of distribution, process, interpersonal exchange (fairness in treatment) and information. De Jong & Schalk (2010) stated that "Fairness is weakly related to work-related attitudes and behavioral intentions under two conditions: when perceived goal achievement is high and when employees depend on temporary work to achieve that goal." (p.175).

### 2.2. Background Theories related to equity

#### Frederick Herzberg's two-factor theory

In Herzberg's research on the factors that make workers interested in their jobs, the majority of respondents believed that these factors were related to the type of job. Herzberg called them "factors" complete. When considering issues that lead to boredom and indifference at work, workers often mention factors related to the work environment, which Herzberg calls internal factors. Retention factors are related to job dissatisfaction. Job dissatisfaction tends to be high when perceived retention factors are low, and vice versa. Satisfaction factors (also known as motivation factors) are closely related to employee job satisfaction. The higher the level of satisfaction with the type of job, the greater the satisfaction because it provides the opportunity to satisfy higher-order needs.

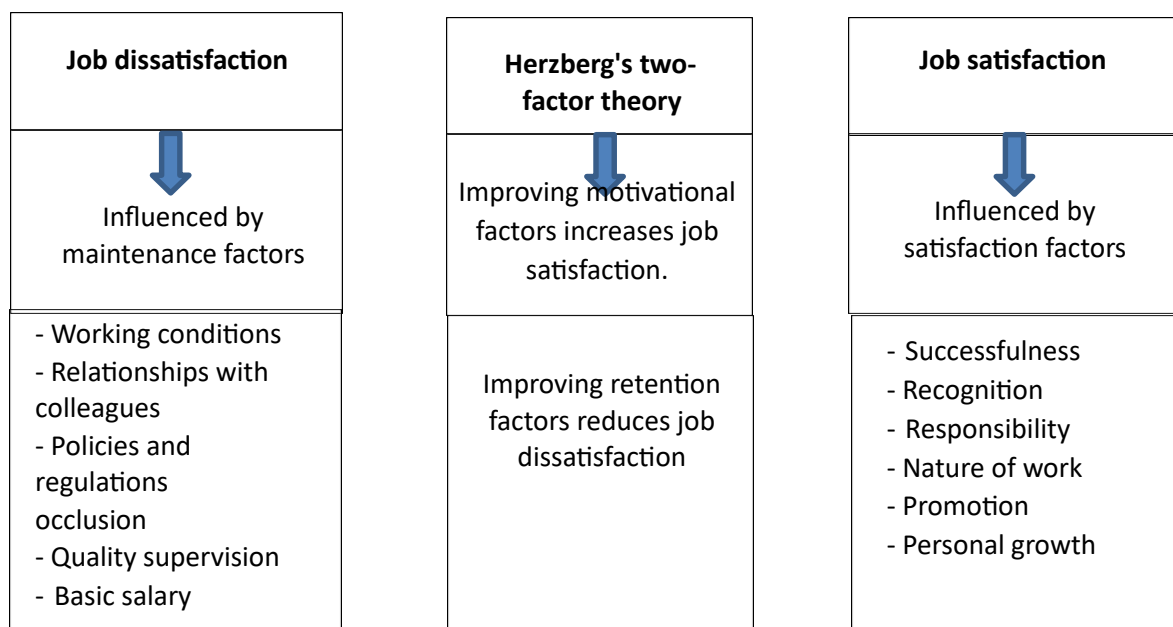


Figure 1. Components of Herzberg's two-factor theory

Source: Management textbook - Hanoi National Economics University Publishing House

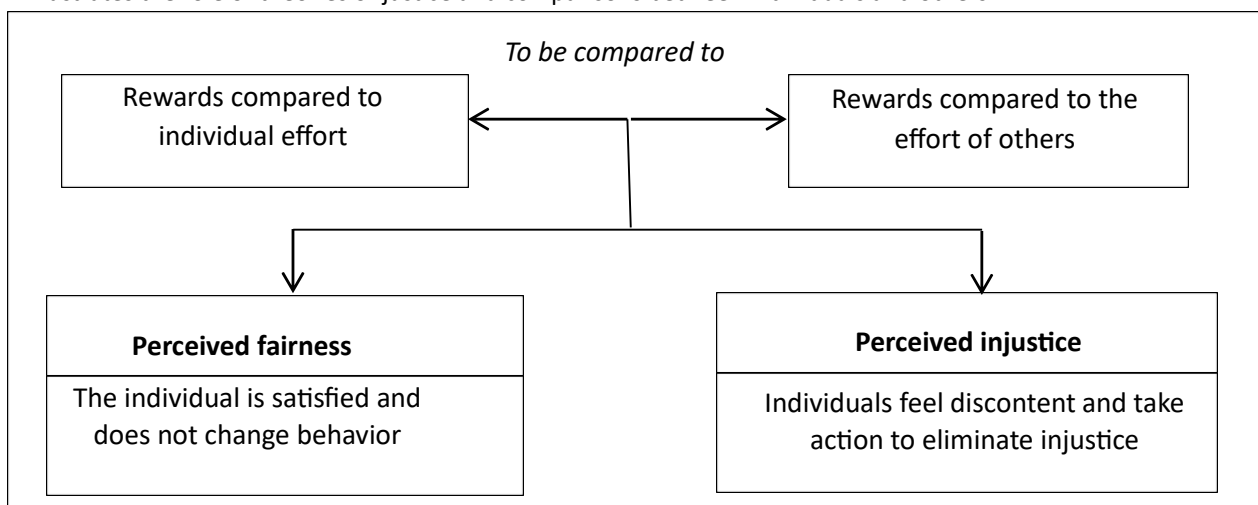
Adams's theory of equity (1963)

This theory is based on the idea that perceived inequality promotes satisfaction, meaning that incentives are effective when people are treated unfairly. Minimize this inequality and create a greater sense of equality. According to Adams, people working in the



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organization just want to receive salaries and wages commensurate with their work performance. Managers should focus on this factor to keep employees satisfied, as they often compare their salaries with those of others doing the same job. The following diagram illustrates the role of theories of justice and comparisons between individuals and others.



**Figure 2. Equity theory and comparisons between individuals and others**

*Source: Management textbook - Hanoi National Economics University Publishing House*

### 2.3. Study Overview

The authors Blader & Tyler (2003) stated that research on fairness in organizations has been conducted by many researchers, but there are few works that respond to systematic research on procedural justice from the perspective of staff. Put another way, there is little in the way of specific practices or actions or perceived clarity about what employees consider when making “judgments about procedural fairness”. The author believes that the lack of definition for evaluation is a huge problem because it hinders employees' understanding when wanting to evaluate fairness. Lack of information about organizational justice also causes many unresolved conflicts (p.107).

The study of Greenberg & Tyler (1987) reviewed and researched the theory of procedural justice and its applicability in organizations. The author distinguishes between the concepts of distributive justice and procedural justice. He believes that the context in which concepts are born also needs to be carefully considered and evaluated. The author concluded that “discuss the dual benefits of studying procedural justice in organizations: improving understanding of the concept of justice and human behavior in organizations” (p.127).

De Jong & Schalk's (2010) study assessed “how motivation to have a temporary job influences the impact of experiential equity on work-related attitudes”. The authors examined three work motivations: "autonomous or voluntary motivation, steppingstone motivation, and controlled or involuntary motivation" to the relationship between experienced "fairness" and " result". Research results have shown that temporary employees receive low equity because they are predicted to have lower performance than long-term workers. Employees who have worked temporarily and want to move to work permanently with the unit will have better attitudes and behaviors towards work and think less about fairness. On the contrary, the author states that “People who are forced to work a temporary job will react more strongly to fairness and have a higher intention to quit” (p.175).

The study by Schminke et al. (2002) explored the influence between “organizational structure” and perceptions of “fairness”. The authors hypothesized that the three dimensions of organizational structure: Centralization; Formalization; Scale and vertical complexity will influence “perceptions of distributive, procedural, and interactional fairness.” They argue that it is possible to predict the impact of organizational structure on the fairness perception of employees weaker than senior personnel and managers based on social theory. The results of the study showed that “Organizational structure—especially centralization and formalization—has a major impact on perceptions of distributive, procedural, and interactional justice. The organizational level is negatively related to both distributive and procedural justice” (p.881).

From the research overview, we see studies on fairness in organizations by a number of foreign researchers. In Vietnam, the issue of fairness in organizations has not been paid attention. Because of this, there is very little research on the issue of fairness in organizations. Conducting research on this content is essential for businesses to recognize and adjust fairness regulations in their businesses.

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## 3. METHODS

Overview research to evaluate typical documents, reports, and scientific articles in the world and Vietnam on fairness in organizations. However, due to differences in context, scope, and research methods as well as more comprehensive assessments of the impact of organizational justice in different economies, cultures and societies, the theoretical basis Theory is just a necessary part for us to use as a basis for evaluating fairness in the organization. In addition, the study also used a survey method for employees of non-life insurance enterprises in Vietnam. The survey results were compiled and analyzed to assess fairness factors in the business where they were working. Combining the theoretical basis built on the general research method and data obtained from the survey method, we have assessed the current situation of fairness in businesses and proposed solutions to improve the situation high level of fairness.

## 4. RESULTS

### 4.1. Evaluation of fairness in the organization

With 300 research samples were selected by random sampling method, ensuring representativeness of the whole. After eliminating invalid questionnaires, 240 guaranteed survey questionnaires were included in the analysis. The results presented on the fairness factor are shown in Table 1. The content of three questions about fairness including "The company's working processes are applied consistently and without bias, in compliance with Ethical standards" denoted as Fairness 1. "My income at the company reflects my work efforts and contributions to the company" is the second survey question and is denoted as Fairness 2. "Company leaders treat me politely, respectfully, and frankly" is the third question, denoted Fairness 3. "Company leaders often promptly inform employees of detailed information" is the last question in the survey, denoted Fairness 4.

Table 1. Results of the Fairness Scale survey

Criteria		Fairness 1	Fairness 2	Fairness 3	Fairness 4
Valid	Totally disagree	18	13	15	8
	Disagree	31	33	30	39
	Normal	30	42	34	28
	Agree	54	114	57	84
	Totally agree	107	38	104	81
	Total	240	240	240	240

Source: Processing of investigation results by the research team

According to the results from data collected and analyzed using SPSS 22.0 software, we see that with four observed variables in the Fairness component. Of the 240 valid questionnaires selected for analysis data, 54 employees participating in the survey answered Strongly Disagree, 133 employees responded choosing to disagree, accounting for 55.4%, 134 times the employees were asked to stand in a neutral position, accounting for 55.8%, accounting for a high percentage of 128.8% of the employees asked, agreeing with 309 times and completely agreeing with 330 times. The rate of employees giving this answer is 137.5%. So the majority of employees surveyed believe that the company's working processes are applied consistently and unbiased, comply with ethical standards, and the company's employee income reflects their efforts working and contributing to the company, the company's leaders treat me politely, respectfully, and frankly, and finally, the company's leaders often inform employees about detailed information promptly. Thus, with the analysis of the Fairness survey survey data, we see that fairness in businesses is rated quite highly. This result, according to observations from survey data and sideline information collection, shows that employees believe that the business is making extraordinary efforts to improve its image and enhance fairness for employees. This is also consistent with the current conditions and circumstances of businesses that are striving to complete the goals set out in the upcoming action goals. However, besides that, there are still a few opinions that do not agree with the statements in the survey, such as company leaders not notifying detailed information to employees in a timely manner.

### 4.2. Proposing solutions to improve fairness at non-life insurance enterprises

*Update information promptly and clearly.* Building a culture of behavior in the organization such as direct dialogue, criticism, and listening, as well as building appropriate forms of language in communication. Establish a management model in the style of

## Research on Organizational Fairness for Employees, Empirical Assessment at Vietnamese Non-Life Insurance Enterprises

"collective feedback, management decides", this is an effective teamwork model where workers will feel that they are respected by their superiors, thereby They can have very creative suggestions that increase excitement in work. Build a habit of transparent information so that everyone understands the problem without misunderstandings in working relationships as well as misleading information.

*Build a fair reward and punishment regime.* Non-life insurance businesses must develop detailed and clear rules, regulations, rewards and penalties. This will help the treatment between superiors and subordinates be more regulated, more disciplined, and more transparent without abusing individualism.

*Create advancement opportunities for capable people.* Employee recruitment policy orients and encourages good and capable employees, team leaders, and head of recruitment and scale development, in order to increase income and compensate when employees leave the profession. for many different reasons. The monitoring stage is also focused and promoted regularly by non-life insurance enterprises. The monitoring system is implemented from headquarters to branches and to each employee. The direction is deployed quickly, directly to the branches with the full exploitation of information technology, to help managers and staff at the branches and employees receive the fastest direction, most complete.

### 5. CONCLUSION

According to the Vietnam Insurance Association, the average annual growth rate of the non-life insurance market continues to increase. The financial performance of insurance companies has increased significantly thanks to equity capital and professional reserves, significantly increasing the solvency and retention capacity of each company and generating investment capital. Reinvest in the economy. Investment activities of insurance companies are becoming increasingly important. This is truly an important capital mobilization channel to help socio-economic development. The investment capital structure has changed from short-term investment (mainly deposits at financial institutions) to purchasing Government bonds, direct investment in infrastructure, production and business development, life service, etc. However, with the increase of licensed insurance companies, the non-life insurance industry is more open. Competition is increasingly fierce and human resources in particular are often affected by their ability to attract new businesses. This challenging natural environment requires property and casualty insurance companies to expand their network through traditional distribution channels with employees nationwide to expand their distribution network and facilitate conditions to expand strategic market scope. The solutions to improve fairness in businesses proposed in this study are solutions to support employee retention.

### REFERENCES

- 1) Adams, J.S. (1963) "Towards An Understanding of Inequality." *Journal of Abnormal and Normal Social Psychology*. (67), pp. 422-436.
- 2) Blader, S. L., & Tyler, T. R. (2003). What constitutes fairness in work settings? A four-component model of procedural justice. *Human Resource Management Review*, 13(1), 107-126.
- 3) De Jong, J., & Schalk, R. (2010). Extrinsic motives as moderators in the relationship between fairness and work-related outcomes among temporary workers. *Journal of Business and Psychology*, 25, 175-189.
- 4) Dung, T. K., (2015, 9th edition). *Human Resource Management*, Ho Chi Minh City General Publishing House
- 5) Greenberg, J., & Tyler, T.R. (1987). Why is procedural justice important in organizations? *Social Justice Research*, 1, 127-142.
- 6) Herzberg, F. 1968, "One more time: how do you motivate employees?", *Harvard Business Review*, vol. 46, iss. 1, pp. 53-62.
- 7) Schminke, M., Cropanzano, R., & Rupp, D.E. (2002). Organizational structure and fairness perceptions: The moderating effect of organizational level. *Organizational Behavior and Human Decision Making*, 89 (1), 881-905.



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## Some Issues in Building a Multi-Pillar Pension System in Vietnam



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**ABSTRACT:** In the context of rapid population aging, building and implementing a multi-layered pension system to ensure old-age benefits for all elderly people is an inevitable development trend, bringing social security for all people. This study focuses on analyzing and clarifying arguments about multi-pillar pension insurance and related issues. Based on documents and secondary data collected, the authors have analyzed and clarified arguments about the theoretical basis and international experience in implementing multi-pillar pension insurance. Along with that, this article analyzes the need to design and build a multi-pillar pension insurance system in Vietnam with three interwoven layers that complement each other, including universal social pension, pension mandatory contributions, and voluntary supplementary pensions, towards the goal of universal pension coverage.

**KEYWORDS:** multi-pillar pension insurance, pension, Vietnam.

### 1. INTRODUCTION

Vietnam is one of the fastest-aging countries in the world. According to forecasts of the General Statistics Office and the United Nations Population Fund, Vietnam's golden population structure period will end in 2039, when the population aged 65 and over exceeds 15%. An aging population often leads to many problems such as a reduced labor force and an increase in the number of people receiving social security policies, posing the challenge of "getting old before getting rich" in general and social security challenges for the elderly in particular in the coming years. Currently, Vietnam's social security system has two components to ensure income for the elderly: social insurance and social assistance. According to Resolution No. 28-NQ/TW of the Central Committee of the Communist Party of Vietnam, term XII, issued on May 23, 2018, the goal of ensuring income for the elderly is determined to be "about 55 % of people after retirement age receiving pension, monthly social insurance and social retirement benefits (period to 2025); About 60% of people after retirement age receive pensions, monthly social insurance and social retirement benefits (period to 2030). However, in reality in Vietnam today, according to statistics from Vietnam Social Insurance and the General Statistics Office of Vietnam, by the end of 2022, the country currently has about 12 million elderly people (all working age), of which only about 3.3 million people are receiving monthly pensions or monthly social insurance benefits (accounting for more than 20% of people after retirement age) and about 1.7 million people receive monthly social benefits from the state budget, currently about 7 million elderly people do not receive any subsidy policies from the state budget or Social Insurance fund. Thus, the number of subjects currently entitled to monthly pension benefits is still very low (accounting for only 15% of the total number of people who have reached the end of working age). The number of people outside of working age who do not have a pension still accounts for a relatively large proportion (mainly living on their children or accumulated assets). The current fragmentation of the pension system in Vietnam means that a portion of the elderly cannot access this source of income and live precariously. In the context of rapid population aging, to ensure income for the elderly in Vietnam, it is necessary to build a multi-layered, multi-pillar pension system; to ensure that all elderly people enjoy the policy.

### 2. CONCEPTS

#### Pension insurance

According to ILSSA & GIZ (2011), a pension is a social insurance scheme that ensures the provision of income to employees reaching the retirement age stipulated by law. In the national social security system, the pension regime always plays an important role in ensuring the future income of workers when they reach the prescribed retirement age or lose their working ability. Ensuring a stable life for the population that has reached the end of working age, contributing to ensuring fairness, and social stability, and

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reducing the burden from the state budget. International social security standards have stipulated periodic pension payments as a form of income security for workers in old age (Convention 102 on Minimum Rules for Social Security, 1952 and Convention 128 on Disability, Old Age and Survivors Benefits, 1967 of the International Labor Organization). In particular, in the context of the rapidly aging population trend globally, the role of pension insurance is becoming more and more important.

### Multi-pillar pension system

The construction of a Multi-pillar pension system comes from the perspective of building a social security floor system of the International Labor Organization (ILO), based on Convention 102 on ensuring a minimum income level and increasingly improved for all people and Convention 202 on ensuring people's access to social security regimes (minimum health services and minimum income). Accordingly, multi-pillar pension insurance is a collection of many pension insurance regimes, aiming to achieve the goal of ensuring that every person when reaching retirement age has at least one source of income from the retirement insurance system. According to ILSSA & GIZ (2011), a multi-pillar pension system is a pension system consisting of a first pillar that is public (generally PAYG); a second pillar that is mandatory and funded; and a third pillar that is voluntary and funded. There are other combinations: a first pillar could be a universal social pension, for example. Retirement systems in other countries are usually built with three layers: social benefits, mandatory retirement, and voluntary retirement, to ensure wide coverage, provide flexible retirement products, and ensure the needs and rights of the elderly; Aims to ensure that every person when they reach the end of working age has at least one source of income from the pension insurance system, or in other words, implement universal pension insurance (every person is entitled to old age pension policy).

### 3. METHODS

In this study, the authors used the method of collecting secondary data from sources including domestic and foreign research works related to the topic of building a multi-pillar pension insurance system, data statistics of Vietnam Social Insurance and the General Statistics Office of Vietnam (on the implementation of pension regimes, benefits for the elderly, etc.) and legal documents serve as the basis for the implementation of pension and benefits for the elderly in Vietnam. At the same time, the authors used data analysis methods: (i) the method of synthesizing and analyzing research works related to this study and, from there, selecting valuable findings closely related to the topic of building a multi-layered pension system to include in the theoretical basis section; (ii) Statistical, comparative, and systematic approaches are used in the study to assess the current state of the pension system in Vietnam, analyze the international experience and Vietnam's future context, and analyze the design and construction of a Multi-pillar pension system in Vietnam towards the goal of universal pension insurance coverage.

### 4. BUILDING A MULTI-PILLAR PENSION SYSTEM IN VIETNAM

#### 4.1. International experience in building a multi-pillar pension system

Currently, pension systems in most countries are facing challenges in terms of adequacy and especially sustainability in the context of rapid population aging globally along with economic, social, and labor changes. Many countries have implemented pension system reforms to build a more stable and sustainable pension system in the long term, following the trend of replacing the single-pillar pension system with a multi-pillar pension system, and moving towards ensuring that all elderly people enjoy the policy. In designing pension systems, policymakers must consider many options and combine them with other policies to optimize; Regardless of design, the pension system needs to ensure the basic principles of increasing coverage, reducing informality and ensuring financial efficiency. Pension systems pursue multiple goals, including (i) ensuring spending for the elderly, (ii) reducing poverty among the elderly, (iii) insuring against risks related to longevity increase and (iv) gender equitable (Barr and Diamond, 2008, 2009). Typical multi-pillar pension insurance models in the world (such as: World Bank's multi-pillar pension insurance model, ILO's pension insurance system, Multi-pillar pension system model according to Organization for Economic Cooperation and Development) all have the following in common: (i) all models have a floor for elderly people without the income to fight poverty (wide coverage, depends on the state budget), called social pension; (ii) layer for subjects with mandatory participation (can be divided into 2 sub-layers: according to PAYG or NDC model, managed by the state); (iii) voluntary contribution layer, including voluntary pension insurance, voluntary supplementary pension insurance and commercial insurance (Wang et al., 2014; Gillion, 2000; Duran, 2018; OECD, 2011). For developing countries, some of the challenges that these countries face in their efforts to protect their people against age-related risks have been cited by the study of Bloom and McKinnon (2013), these are populations "aging" (in some cases, rapidly) before they "get rich", large rural/agricultural populations and large informal sector workforces, and weak institutions, information systems and governance. Therefore, developing countries are increasingly aware of the need to design and implement improvements in public systems to provide pensions for the elderly, to achieve the goals of ensuring income for the elderly and increasing access to the pension system for the elderly.

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The practical experience of a number of Asian countries in designing and implementing multi-tiered pension systems has shown that these countries have achieved success in achieving universal coverage of a number of social security programs based on the combination of contributory social insurance programs and social assistance programs like China and Japan, it has moved towards universal pension insurance (ISSA, 2018a); Thailand has succeeded in universalizing pension insurance for the elderly with more than 80% of the elderly population enjoying pension benefits (ISSA, 2018b). According to Katsuya Yamamoto (2018), Japan built a universal pension system based on the foundation of a three-floor pension system. The first floor is called the National Pension layer, which covers everyone of working age. This is a mandatory level for everyone and the benefit level is determined according to the pay-as-you-go (PAYG) mechanism. All beneficiaries - regardless of income or assets - will receive retirement, death and disability benefits at a general rate of 65,000 Yen/month (pension only is based on 40 years of contributions or less depending on deduction conditions). The second floor is called the Employees' Pension Fund. This fund is a supplementary fund to the National Pension Fund to unify regulations for workers in the private and public sectors, managed by the State Pension Investment Fund. The benefit level is determined based on the average salary including working time, number of months participating in the system and the benefit adjustment system. The third floor is the voluntary tier with a higher expected benefit level. This is the floor for workers in the private sector on the 2nd floor or for self-employed workers on the 1st floor. Thailand's multi-tiered pension system has four tiers (Pisut Sampatanukul, 2018). The "Zero" floor is the universal, called old age benefits, previously designed in a conditional form (excluding pensioners) but since 2009 it has become a system covering the entire population. The first floor is administered by the Ministry of Labor through the Social Security Fund and is for private sector workers, with predetermined benefit levels. The second floor is for public sector workers (through the Government Pension Fund managed by the Ministry of Finance, benefits are based on contributions) and for teachers in private schools (through the Regional Teacher Support Fund). Private sector managed by the Ministry of Education, benefit level is based on contribution level). The third floor is for workers in the private and public sectors as well as self-employed workers and those outside the labor market. The Philippines pension system also includes four tiers (Angelo Taningco, 2018). Accordingly, the first floor is the tier aimed at poverty reduction and social assistance with the goal of covering the elderly and the poor; the 2nd floor is the mandatory retirement tier, for workers in the private, public and military sectors, with predetermined benefit levels; the third floor is the mandatory retirement level, for workers in the private, public and military sectors, with predetermined contribution levels; the 4th floor is a voluntary floor for the general public. Each floor is managed by many state or private agencies and organizations.

### 4.2. Designing a multi-pillar pension system in Vietnam

In Vietnam, ensuring income security for the elderly is an important goal of the social security system. Currently, the pension regime is adjusted according to the Law on Social Insurance No. 58/2014/QH13 dated November 20, 2014; the subsidy regime for the elderly is stipulated in the Law on the Elderly No. 39/2009/QH12 dated November 23, 2009. According to a report from the General Statistics Office of Vietnam, by the end of 2022, Vietnam has about 12 million elderly people, accounting for about 12% of the population; including 1,918,987 people aged 80 and over (accounting for 17% of the total number of elderly people). Of these, about 1.7 million elderly people are receiving monthly social benefits from the state budget (accounting for about 14.8% of the total number of elderly people). The standard social assistance level applicable from July 1, 2021 is 360,000 VND/month, accordingly, the lowest monthly social allowance for the elderly is 360,000 VND/person/month, and the highest is 1,080,000 VND/person/month (equal to 38.6% of the poverty line in rural areas, 30% of the poverty line in urban areas and 19.4% of the base salary); There are about 3.3 million people receiving pension monthly and social insurance benefits in the form of social insurance, the average pension benefit is about 5.4 million VND/month (of which the social insurance fund is paying about 2.7 million people enjoying monthly retirement and social insurance benefits with an amount of nearly 14,475 billion VND/month; the state budget pays for those who retired before 1995). It can be seen that the current pension system in Vietnam has different pension regimes, but they are still separate, and fragmented. The protection scope of pension floors is not enough to ensure that every employee has a pension when they reach the end of their working age. With an elderly population of more than 12 million people, the current pension system does not cover nearly 7 million people, meaning that more than half of the elderly population has no pension. In the context of population aging, designing a multi-pillar pension system to increase coverage and ensure a minimum income level for the elderly is an important and urgent issue.

From analyses of international experience and Vietnam's socio-economic context, it can be seen that Vietnam needs a strategy to expand the coverage of the pension system, to provide pensions for current seniors and pensions for future generations of seniors. These strategic objectives can be combined using a contributory pension scheme and a social pension scheme, designed in such a way that they complement each other. To achieve the goal of universal social insurance, specifically that all elderly people have social pensions in the spirit of Resolution No. 28-NQ/TW of the Central Executive Committee of the Communist Party of Vietnam term XII, issued on May 23, 2018, on social insurance policy reform, it is possible to consider designing a multi-pillar

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pension system with three interwoven layers, including a universal social pension program, a contributory pension program and voluntary retirement program. With this multi-pillar pension system design, social pension programs and pension programs make a very important contribution to motivating low-income people in the informal sector to participate in the pension system, thereby increasing the coverage of the system. In particular, the universal social pension program is considered the foundation of the pension system, funded by Government tax revenue, with equal benefits for all subjects. This universal social pension program provides the same pension to everyone regardless of their income level. From a management perspective, the simplest model with the lowest transaction cost of a social pension program in this system is a universal pension program based on the conditions of "citizenship" and "age" (World Bank, 1994), especially for developing countries like Vietnam (where management capacity and information recording systems are limited). This helps avoid the reduced incentive to work and save in asset-targeted programs. Along with the social pension program, the multi-pillar pension system has a Contributory Pension Program with the purpose of generating additional income for those contributing to the system. Thus, it can be seen that the design of this pension system clearly defines the redistribution function and the income assurance function; In which the redistribution function is performed by the social pension program, the contributory pension program clearly demonstrates the function of ensuring spending for beneficiaries. Elderly people will be guaranteed a minimum standard of living as well as have benefits consistent with their contributions and income from the retirement levels in the system. Along with that is applying the method of excluding people with high incomes by stipulating that people with a living pension cannot receive social pensions and people with high incomes or assets should not receive social pensions. will not receive a social pension. In conditions where the income and asset tracking system is not yet complete, identifying subjects with high pension levels will be easier than reviewing income or assets. According to Ha et al. (2023), some policy suggestions can be considered to build a multi-pillar pension system, specifically as follows: First, add a social pension layer in addition to the basic social insurance layer; At the same time, add regulations on the link between the social pension benefit layer and the basic social insurance layer to expand the beneficiaries of social insurance regimes. Second, adjust the retirement age according to the roadmap; Gradually adjust and reduce the age to enjoy social pension benefits to ensure flexibility, consistent with the capacity of the State budget in each period, thereby expanding the beneficiaries of social pension according to the roadmap. Third, readjust the regulations on the contribution levels of subjects and the pension calculation formula, ensuring the principles of fairness, equality, sharing and sustainability; Adjust and increase the level of social pension benefits, ensuring the goal of fighting poverty for elderly people without pensions. Fourth, strengthen policies to encourage low-income workers to participate in basic pension insurance through measures to support payment costs and/or partially support benefits. In addition, promulgate policies to encourage businesses and employees to pay additional pensions for employees through reducing corporate income tax and personal income tax.

## 5. CONCLUSION

In Vietnam today, building and implementing a multi-pillar pension system is an inevitable development trend. In the context of a rapidly aging population, Vietnam needs to build a multi-pillar pension system to ensure that all elderly people can enjoy the policy. The article uses methods of analysis, synthesis, comparison, and contrast from documentary sources and secondary data to clarify arguments on the theoretical basis of international experience in multi-tier pension insurance. On that basis, analyze the construction of a multi-pillar pension insurance system in Vietnam, aiming at the goal of universal pension coverage. This overall pension system needs to be designed with three interwoven layers that complement each other, including universal social pension, mandatory contributory pension and voluntary supplementary pension. Accordingly, the elderly will be guaranteed a minimum standard of living as well as have benefits consistent with the level of contribution and income from the retirement levels in the system.

## REFERENCES

- 1) Angelo Taningco. (2018). "Pension Coverage in the Philippines". Presentation at the 13<sup>th</sup> Pension Experts Meeting in the Asia-Pacific Region, Seoul, Korea, 21-22 June 2018.
- 2) Barr, N., & Diamond, P. (2008), *Reforming pensions: Principles and policy choices*, Oxford University Press.
- 3) Barr, N., & Diamond, P. (2009), "Reforming pensions: Principles, analytical errors and policy directions", *International Social Security Review*, 62(2), pp.5-29.
- 4) Barr, N., & Diamond, P. (2009), *Pension reform: A short guide*, Oxford University Press.
- 5) Bloom, D. E., & McKinnon, R. (2013). *The design and implementation of public pension systems in developing countries: Issues and options* (No. 59). IZA Policy Paper.
- 6) Duran, F. (2018). The ILO Multi-Pillar Pension Model: Building Equitable and Sustainable Pension Systems. *Social Protection for All Issue Brief, BIT*.

## Some Issues in Building a Multi-Pillar Pension System in Vietnam

- 7) Gillion, C. (2000). The development and reform of social security pensions: The approach of the International Labour Office. *International Social Security Review*, 53(1), 35-63.
- 8) Ha, B. T. T., Tu, P. M. & Ha, T. N. (2023). Discussion on multi-tiered pension insurance and old age benefit in Vietnam: overview study and policy recommendations. *Journal of Economics, Finance and Management Studies*, 6(5), 2304-2313.
- 9) ILO. (2012). R202–Social protection floors recommendation, 2012 (No. 202).
- 10) ILSSA & GIZ (2011), *Viet Nam Social Protection Glossary*, Institute of Labour Science and Social Affairs.
- 11) International Labor Organization (1952), *Convention 102 on Minimum Rules for Social Security*, 28 June 1952.
- 12) International Labor Organization (1967), *Convention 128 on the rights of persons with disabilities and the elderly*, June 29, 1967.
- 13) International Labor Organization (1967), *Recommendations on Injury, Old Age and Survivors' Allowances*, June 29, 1967.
- 14) ISSA (2018a), *10 Global challenges for social security-Asia and the Pacific*, International Social Security Association, ISBN 978-92-843-0178-2, Geneva, Switzerland.
- 15) ISSA (2018b), *10 Global challenges for social security*, International Social Security Association, ISBN 978-92-843-0178-2, Geneva, Switzerland.
- 16) Katsuya Yamamoto. (2018). "How to expand the pension system: From the view point of pension adequacy". Presentation at the 13th Pension Experts Meeting in the Asia-Pacific Region, Seoul, Korea, 21-22 June 2018.
- 17) Knox-Vydmanov, C. (2022). Implementing the transnational concept of multi-pillar pension systems: the cases of China and Thailand.
- 18) National Assembly of the Socialist Republic of Vietnam (2009). *Law on Elderly No. 39/2009/QH12*, promulgated on November 23, 2009.
- 19) National Assembly of the Socialist Republic of Vietnam (2014). *Law on Social Insurance No. 58/2014/QH13*, promulgated on November 20, 2014.
- 20) Pisut Sampatanukul. (2018). "Thai Pension System: Expanding Coverage". Presentation at the 13th Pension Experts Meeting in the Asia-Pacific Region, Seoul, Korea, 21-22 June 2018.
- 21) Portugal, O. E. C. D., & Average, E. U. R. PENSIONS AT A GLANCE 2011: RETIREMENT-INCOME SYSTEMS IN OECD COUNTRIES. *age*, 28, 23-6.
- 22) The Central Committee of the Communist Party of Vietnam (2018), *Resolution No. 28-NQ/TW of the Seventh Conference of the 12th Central Executive Committee on reforming social insurance policies*, issued on 23rd May 2018.
- 23) Vietnam Social Insurance (2021, 2022), *Report on management and use of social insurance fund*.
- 24) Wang, P., Zhang, M., Shand, R., & Howell, K. (2014). Retirement, pension systems and models of pension systems. *Pension Systems and Models of Pension Systems (June 6, 2014)*.
- 25) World Bank (1994), *Averting the Old-Age Crisis: Policies to Protect and Promote Growth*, Oxford University Press for the World Bank.



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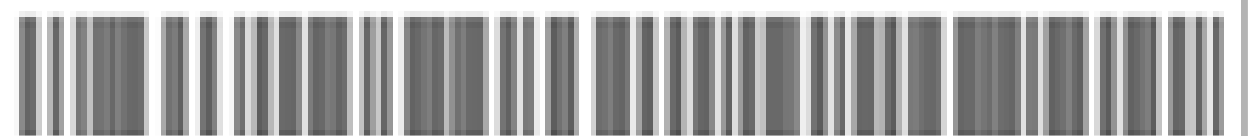
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