

ISSN[ONLINE]:2643-9875 ISSN[PRINT]:2643-9840

# IJMRA

**International Journal of  
Multidisciplinary Research and  
Analysis**

**VOLUME 07. YEAR 2024  
ISSUE 01 JANUARY**

**SJIF IMPACT  
FACTOR:  
7.022**

**IJMRA ASI  
SCORE:  
1.3**

**CROSSREF  
DOI:  
10.47191/IJMRA**

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Research and Analysis is a leading analysis  
journal for publication of new ideas in  
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## The Effect of Vitamin C Administration on Interleukin-6 in Male Rats of Wistar Strain Infected with *Pseudomonas Aeruginosa* Bacteria



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**ABSTRACT:** *Pseudomonas aeruginosa* is the main pathogen that causes nosocomial infections in hospitals, and can infect open wounds, burns to necrosis pneumonia. Research shows vitamin C contains antioxidants and antimicrobials. To determine the effect of vitamin C administration on reducing interleukin-6 (IL-6) in male rats of wistar strains infected with *Pseudomonas aeruginosa* bacteria. This study used an experimental research design with a Post Test Only Control Group Design research design. The subjects of the study amounted to 30 wistar rats which were randomly divided into 5 groups. K(-) group of rats without *P. aeruginosa* infection. K(+) group of rats infected with *P. aeruginosa* 108 CFU per head without vitamin C. P1, P2 and P3 in *P. aeruginosa* infection and given vitamin C at doses of 9 mg, 18 mg and 36 mg/mL/day for 7 days. Day 8 examination of IL-6 levels using the ELISA method. The results of IL-6 levels the One Way Anova test showed significant differences between groups ( $p = 0.028$ ). The decrease in IL-6 levels in the K3 group infected with *Pseudomonas aeruginosa* bacteria and vitamin C at a dose of 9 mg/ml/day experienced insignificant differences with the control group (K1), the K4 group given vitamin C at a dose of 18 mg/ml/day and the K5 group given vitamin C at a dose of 36 mg/ml/day.

**KEYWORDS:** Vitamin C, IL-6, *Pseudomonas aeruginosa*

### I. INTRODUCTION

*Pseudomonas aeruginosa* is the main pathogen that causes nosocomial infections in hospitals.<sup>1</sup> *Pseudomonas aeruginosa* can infect open wounds, burns to cause necrosis pneumonia.<sup>2</sup> An increase in the incidence of nosocomial infections by *Pseudomonas aeruginosa* in patients in the Hospital followed an increase in the incidence of resistance to various antibiotics such as  $\beta$ -lactam, ciprofloxacin, tobramycin and colistin.<sup>3</sup> Resistance to antibiotics can lead to longer recovery times, increase the risk of death, multiply carriers in the community, multiply resistant bacteria and extend hospital stays.<sup>4</sup> The body begins the inflammatory phase when an injury occurs, neutrophils and macrophages will enter the injured tissue and these cells will produce Reactive Oxygen Species (ROS). Interleukin-6 (IL-6) is the primary cytokine in the acute inflammatory response.<sup>6</sup> Severe infection can trigger the production of large amounts of IL-6 and cause a systemic reaction.<sup>7</sup>

The prevalence survey conducted by WHO in 55 hospitals from 14 countries representing 4 WHO Regions (Europe, the Middle East, Southeast Asia and the Western Pacific) showed an average of 8.7% and Southeast Asia as many as 10.0% of hospital patients had nosocomial infections.<sup>1</sup> Prevalence data from 10 teaching hospitals in Indonesia report that the incidence of nosocomial infections is 6-16% with an average of 9.8%.<sup>1</sup> In Surakarta, research was conducted on the numbers and patterns of germs on the walls, floors, and air of the ICU (Intensive Care Unit) room of Dr. Moerwadi Hospital. The results obtained that the growth of wall germs was 4.33%, floor 15.18% and air 80.48%. The germ patterns found on walls and floors are *Acinetobacter baumannii*, *Staphylococcus* sp. and *Bacillus* sp. While the germ patterns found in air samples were *Morexella lacunata*, *Staphylococcus* sp., *Bacillus* sp., *Klebsiella pneumonia*, *Pseudomonas aeruginosa* and *Escherichia coli*.<sup>10</sup>



## The Effect of Vitamin C Administration on Interleukin-6 in Male Rats of Wistar Strain Infected with *Pseudomonas Aeruginosa* Bacteria

Vitamin C is the most commonly used vitamin as an antioxidant. Vitamin C has another name, ascorbic acid which is most effective as a coenzyme and cofactor in inhibiting free radicals. Vitamin C is chemically able to react with most free radicals and oxidants present in the body.<sup>7</sup> Previous research suggested that supplementation of vitamin C doses of 1.8 mg can reduce the level of oxidative stress intervened for 14 days in male *wistar* rats after maximal physical activity.<sup>4</sup> Other studies have also proven that giving vitamin C 500 mg in 7 days can increase Haemoglobin (Hb) levels and can reduce MDA levels in athletes who get heavy physical activity.<sup>1</sup> Administration of vitamin C 500mg to tuberculosis (TB) patients for 10 days causes an increase in lymphocyte levels.<sup>8</sup> Vitamin C supplementation for 4 weeks can increase lymphocyte count in HIV/AIDS patients.<sup>9</sup> This situation in its prevention requires antioxidants and antimicrobials such as vitamin C which dampens the bacteria *Pseudomonas aeruginosa*. Vitamin C acts as a co-factor in several enzymatic reactions in the body and can increase immune system components so that it is expected to reduce IL-6 levels. Therefore, further research is needed on the effect of vitamin C on IL-6 levels.

## II. MATERIAL AND METHOD

### Study Design and Experimental Animals

The type of research is experimental. The research design that is in accordance with this problem is post *test only control group design* on experimental animals of *wistar* strain rats. The study subjects used 30 male rats of *the wistar* strain, aged 10-12 weeks with a body weight of 180-220 grams obtained from Java Rats Lab Semarang according to inclusion and inclusion criteria. Rats are kept with standardized pelleted feed and drinking water in the form of water, maintenance room temperature ranges from 28o – 32° C with adequate ventilation and room. The rats then adapted for 7 days before being treated. K1 group of rats without infected with *P. aeruginosa*. K2 group of rats infected with *P. aeruginosa* 108 CFU per head without vitamin C. K3, K4 and K5 in *P. aeruginosa* infection and given vitamin C at doses of 9mg, 18mg and 36mg / mL / day for 7 days. Day 8 IL-6 level examination using ELISA method.

### Research Materials

The research material consists of rat treatment ingredients: Male white rats Wistar strain aged 2-3 months with a body weight of 150-200 gr, standard feed (feed BR-594 *Pokhpand*), aquades, suspension of *Pseudomonas aeruginosa*, ginger extract. Bacterial suspension ingredients: pure bacteria *Pseudomonas aeruginosa*, Nutrient Agar, Nutrient Broth, BaCl<sub>2</sub> 1%, H<sub>2</sub>SO<sub>4</sub> 1%, hand soap, and spiritus.

### Research Equipment

This study used several equipment, including rat cages with feed bins with sizes P: 40 cm, L: 30 cm, T: 30 cm, rat scales "*Nigushi Scale*", gloves, drip pipettes, *ependorf tubes*, stopwatches, spectrophotometers, micropipettes, ELISA readers, and Hematology Autoanalyzer.

### How to Prepare Before Treatment

The research sample, namely experimental animals, must be included in the inclusion criteria, taken in a simple random manner as many as 30 heads with details of 5 groups with the number of each sample each group is 6 heads, consisting of a control group and four treatment groups, then adapted first for 7 days. Samples of 30 male rats of the *wistar strain* were acclimated in the IBL laboratory of experimental animals Sultan Agung Islamic University Semarang. Experimental animals are given standard feed consisting of 20-25% protein, 45-55% starch, 10-12% fat, and 4% crude fiber and drink the same water every day.

### How to Give and Make Vitamin C Dosage

Vitamin C used is Non Acidic Vitamin C Powder @200gr (DKE®). The high doses used are 500 mg, 1000 mg and 2000 mg. Based on the conversion table of dose calculation by Laurence & Bacharach (1964)<sup>14</sup> with the calculation of conversion dose in rats (BB = 200 g) then obtained figures of 9 mg / day, 18 mg / day, and 36 mg / head / day diluted with 1 ml of aquades given orally (sonde) for 7 days after the treatment of rats infected with *P. aeruginosa* 108 CFU / ml per head.

## The Effect of Vitamin C Administration on Interleukin-6 in Male Rats of Wistar Strain Infected with *Pseudomonas Aeruginosa* Bacteria



Figure 1. Given Vitamin with 1 ml of given orally (sonde)

### How to Make *Pseudomonas aeruginosa* Bacterial Suspension

*Pseudomonas aeruginosa* was cultured on *Phenol Red Mannitol Broth* (PRMB) media. From the stock solution, one OSE culture of *P. aeruginosa* was inoculated into PRMB media, then incubated at 37°C for 24 hours in the incubator. *Pseudomonas aeruginosa* grown on PRMB media was transferred into *Blood Agar* (BA), incubated for 24 hours at 37°C. From BA media 1-2 colonies are taken aseptically, put into a tube containing 2 mL of 0.9% NaCl solution, stirred with sterile cotton sticks, so that turbidity is obtained the same as the standard turbidity of 0.5 Mc Farland solution.



Figure 2. Intraperitoneal injection of bacteria *Pseudomonas aeruginosa*

### *Pseudomonas aeruginosa* infection

*Pseudomonas aeruginosa* infection is done by injecting bacteria intraperitoneally in mice, injected 1 time. The dose of bacteria given to rats was 108 CFU as much as 0.2 ml based on preliminary research then waited for 24 hours.

### Rat Blood Prep Intake

Taking rat blood preparations is done by *cardiac puncture* (heart puncture) to obtain large volumes of blood. The size of the needle used for *cardiac puncture* is 20-21 G in the ventricular heart. Rats were anesthetized by inhalation with chloroform first. The needle is inserted under the *xyphoid cartilage* slightly to the left of the midline. The needle advances at an angle of 20°-30° from the horizontal axis of the sternum into the heart. Aspiration is light as it moves forward and blood is drawn slowly.

### TNF- $\alpha$ Rate Measurement Procedure using ELISA kit

To measure IL-6 levels, the *Enzyme Linked Immunosorbent Assay* (ELISA) method is carried out. The procedure is as follows: (1) The rat's blood is inserted in a tube without *Ethylenediaminetetraacetic* (EDTA) to be inserted into a *centrifuge* with a rotation of 3000 rpm for 10 minutes to obtain blood serum. (2) Furthermore, the serum that has been obtained is examined with ELISA which aims to determine the level of IL-6 using the *Human IL-6 Immunoassay Quantikine ELISA kit* and read using a *microplate reader* at a wavelength of 450 nm.

## III. RESULT

Research on giving high doses of vitamin C to IL-6 levels in male rats of *wistar* strains infected with *Pseudomonas aeruginosa* bacteria has been carried out for 14 days. The results of the study are listed in table 1.

# The Effect of Vitamin C Administration on Interleukin-6 in Male Rats of Wistar Strain Infected with Pseudomonas Aeruginosa Bacteria

**Table 1. Results of analysis of average IL-6 levels**

Variable	Group					Sig.(p)
	K1	K2	K3	K4	K5	
	N=5 Mean	N=5 Mean	N=5 Mean	N=5 Mean	N=5 Mean	
Up to IL-6	7.8317	8.8300	8.2767	7.7417	7.3750	
hrs. deviasi	.56757	.73702	.46715	.28181	1.0390	
Shapiro Wilk	.780*	.664*	.567*	.515*	.355*	
Levene Test						.040
One Way Anova						.028***

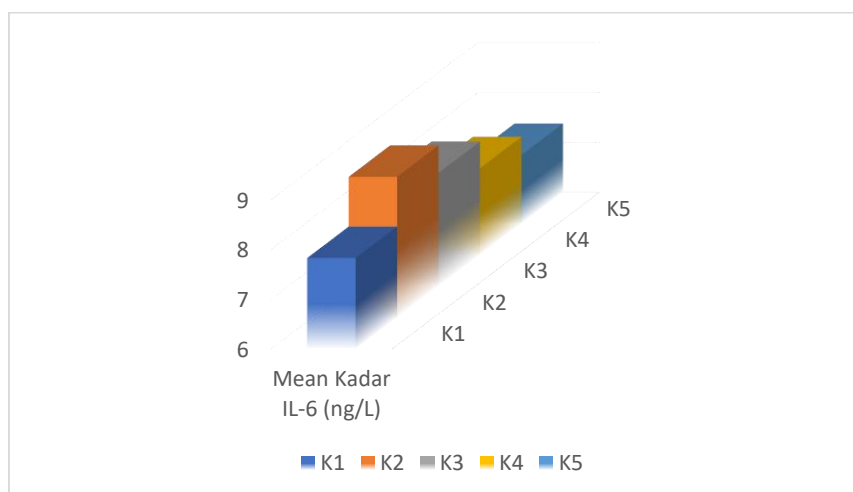
**Description:** \*Normal  $p > 0.05$  \*\*Homogeneous  $p > 0.05$  \*\*\*Significant  $p < 0.05$

Table 1 shows that the lowest average IL-6 levels were in the fifth treatment group (K5), followed successively by the fourth treatment group (K4), control group (K1) and third treatment group (K3). The second treatment group (K2) received the highest average IL-6 levels. All groups of IL-6 levels based on the *shapiro wilk* test showed that all data groups were normally distributed ( $p > 0.05$ ) and homogeneity tests using the *levene* test were not homogeneous ( $p = 0.032$ ) so data analysis using the *One Way Anova* parametric test. The results of the *One Way Anova* test showed significant differences between groups ( $p = 0.028$ ). To find out which groups are different meaningfully, a *Post Hoc* test with the *Tamhane* Test is carried out as presented in table 2.

**Table 2. Differences in IL-6 levels between 2 groups**

Group	p-Value
K1 vs K2	0,037*
K1 vs K3	0,150
K 1vs K4	0.631
K1 vs K5	0,522
K2 vs K3	0,150
K2 vs K4	0,016*
K2 vs K5	0,016*
K3 vs K4	0,078
K3 vs K5	0,109
K4 vs K5	0,749

\* *Tamhane* test with significant value  $p < 0.05$



**Figure 3. IL-6 Rate Rerata Graphic**

The results of the *Post Hoc* test with *Tamhane* Test in table 2 showed that IL-6 levels in the control group (K1) had significant differences in the second treatment group (K2) ( $p = 0.037$ ), the control group (K1) there was no significant difference in the third treatment group (K3) ( $p = 0.150$ ), the fourth treatment group ( $p = 0.631$ ) and the fifth treatment group (K5) ( $p = 0.522$ ). The results in the second treatment group (K2) did not have a significant difference in the third treatment group (K3) ( $p = 0.150$ ) but there

## The Effect of Vitamin C Administration on Interleukin-6 in Male Rats of Wistar Strain Infected with *Pseudomonas Aeruginosa* Bacteria

was a significant difference in the fourth treatment group (K4) ( $p = 0.016$ ) and the fifth treatment group ( $p = 0.016$ ). The third treatment group (K3) did not have a significant difference between the fourth treatment group (K4) ( $p = 0.078$ ) and the fifth treatment group (K5) ( $p = 0.109$ ). The fourth treatment group (K4) had no significant difference from the fifth treatment group (K5) ( $p = 0.749$ ). Based on the data above, it can be concluded that the administration of vitamin C at a dose of 36 mg/ml/ day and a dose of 18 mg/ml/ day has a significant effect compared to the dose of 9 mg/ml/ day on reducing IL-6 levels in male rats of wistar strain infected with *Pseudomonas aeruginosa* bacteria so that the hypothesis statement is accepted.

### IV. DISCUSSION

This study used samples of 30 male rats of the wistar strain which were divided into 5 groups of 6 rats each, namely the control group (K1) with standard feeding without being infected with *Pseudomonas aeruginosa* bacteria, the second treatment group (K2) with standard feeding infected with *Pseudomonas aeruginosa* bacteria, the third treatment group (K3) was given vitamin C at a dose of 9 mg/ml/day infected with *Pseudomonas aeruginosa* bacteria, the fourth treatment group (K4) was given vitamin C at a dose of 18 mg/ml/day infected with *Pseudomonas aeruginosa* bacteria and the fifth treatment group (K5) was given vitamin C at a dose of 36 mg/ml/day infected with *Pseudomonas aeruginosa* bacteria. Day 8 IL-6 levels were checked. This study used male rats of the wistar strain because it has known its properties perfectly, easy to maintain, relatively healthy animals are very suitable for a wide variety of studies.

The results of the examination of IL-6 levels in the K2 group infected with *Pseudomonas aeruginosa* bacteria without vitamin C administration increased significantly compared to the control group (K1), the group given vitamin C at doses of 9 mg/day (K3), 18 mg/day (K4), and 36 mg/day (K5) as in table 1. *Pseudomonas aeruginosa* infection will secrete ETA toxin (exotoxin A) which can inhibit the synthesis of T cell activation proteins to produce IL-6, in line with this study that with the inoculation of *P. aeruginosa* bacteria to mice, there is an increase in IL-6 levels.<sup>3</sup> Increased IL-6 is also associated with transcriptional activity of nuclear factor-kappaB (NF-kB) and inhibition of PPAR- $\gamma$  expression.<sup>4</sup> *Pseudomonas aeruginosa* infection will stimulate macrophages to release IL-12 either directly or indirectly. Interleukin-12 plays a role in the formation of Th1 cells. Furthermore, collaborating with IL-1 and TNF- $\alpha$  stimulate T cells and NK cells to produce IFN- $\gamma$ . These interferon- $\gamma$  will activate alveolar macrophages to produce various substances, including Reactive Oxygen Species (ROS) and trigger cell membrane damage then interfere with lipid peroxidation on cell membranes which will produce Malondialdehyde (MDA). Increased MDA is used as a marker of oxidative stress.<sup>6</sup>

The decrease in IL-6 levels in the K3 group feeding infected with *Pseudomonas aeruginosa* bacteria and vitamin C at a dose of 9 mg/ml/ day experienced insignificant differences with the control group (K1), the K4 group given vitamin C at a dose of 18 mg/ml/day and the K5 group given vitamin C at a dose of 36 mg/ml/day as in table 1. This happens because the benefits of vitamin C include antioxidants, anti-inflammatory, antimicrobial and can function to improve the immune system. The antioxidant mechanism of vitamin C is capable of free radical scavenging that donates its electrons to free radical molecules so that it becomes stable, while vitamin C becomes a relatively stable and unreactive form of radicals. Anti-inflammatory vitamin C by inhibiting the activity of nuclear transcription factor kappa (NF-kB) and inhibiting the work of ROS directly so that IL-6 levels decrease. This is in accordance with research conducted by Rusiani et al<sup>1</sup> supplementation with a dose of 1.8 mg vitamin C and 1.44 mg vitamin E can reduce oxidative stress levels after doing maximum physical activity in male white rats wistar strains.<sup>1</sup> A similar study was also conducted by Yulistiana et al<sup>2</sup> which stated that the addition of vitamin C injection therapy 1x 1000 mg intravenously in patients with COPD Exacerbations were shown to reduce the average plasma IL-6 levels but the decrease was not statistically significant.<sup>2</sup>

### V. CONCLUSION

1. The group infected with *Pseudomonas aeruginosa* bacteria without vitamin C showed high average levels of interleukin-6.
2. Giving Vitamin C at a dose of 9 mg/ml/day can reduce interleukin-6 levels in male rats of wistar strains infected with *Pseudomonas aeruginosa* bacteria.
3. Giving Vitamin C at a dose of 18 mg/ml/day can reduce interleukin-6 levels in male rats wistar strain infected with *Pseudomonas aeruginosa* bacteria.
4. Giving Vitamin C at a dose of 36 mg/ml/ day can reduce interleukin-6 levels in male rats wistar strain infected with *Pseudomonas aeruginosa* bacteria.

### ACKNOWLEDGEMENT

Thank you to the head of the IBL Laboratory, Faculty of Medicine, Sultan Agung Islamic University and the PSPG Laboratory, Gadjah Mada University, Yogyakarta, for allowing us to do research there..

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## A Bibliometrics Analysis for Artificial Intelligence Implementation of Employment in Education Institutions



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**ABSTRACT:** Artificial Intelligence (AI) represents the capacity of computers to emulate human intelligence, raising concerns about its potential impact on the role of educators. As students progressively rely on AI for task completion, there is a perceived threat to the traditional role of educators. To address this challenge, this paper advocates for the adoption of the Role Play Model and Project-Based Learning methods in education. These approaches are inherently human-centric and cannot be replicated by AI, ensuring that students continue to require the guidance and expertise of educators. Utilizing bibliometric analysis with data from Scopus spanning the years 1985 to 2023, this paper delves into the evolution of AI in education. It emphasizes the importance of active interaction and guidance from educators in helping the educational sector adapt to the AI era, thereby enabling students to remain competitive in an increasingly AI-driven world. It underscores the essential role educator's play in cultivating deep understanding and skills in students, which AI cannot completely substitute. In summary, educators must recognize their pivotal role in shaping students' education in an AI-dominated landscape.

**KEYWORDS:** artificial intelligence, lecturers, education, schools, colleges.

### I. INTRODUCTION

The rapid advancements in Artificial Intelligence (AI) technology have influenced various aspects of human life, including education [1], [2]. In the current digital era, there are many pros and cons regarding the use of AI in teaching and learning systems [3], [4]. This research focuses on the impact of artificial intelligence on the performance of educators in the context of current and future education, particularly in higher education institutions [5]. AI can assist in better academic management, optimize the learning process, and provide more personalized experiences to each student [6], [7]. On the other hand, the rise of sophisticated technology raises concerns about the possibility of automation systems replacing human jobs [8], [9].

This paper aims to comprehensively discuss the implications of using AI in education, especially concerning the performance of educators in higher education institutions. Additionally, it will explore strategic efforts that can be undertaken to harness the potential benefits of AI in educational development while considering the issues and challenges that may arise [10], [11]. It is hoped that this research will provide valuable insights for practitioners, policymakers, researchers in the field of education, and anyone interested [12], [13]. The objective of this study is to provide a fair overview of how AI impacts the performance of educators and to offer policy recommendations and practical steps to maximize the benefits of this technology for the progress of the education sector [14], [15].

### II. METHOD

#### A. Finding Keyword using Scopus

To conduct a comprehensive review of the research topic, a thorough search was conducted using the reputable scientific literature database, Scopus. By utilizing keywords such as "artificial intelligence (AI), lecturers, teaching, teachers, schools, students, campuses, and jobs," this search aimed to identify relevant articles and provide valuable insights for this research. Scopus, being a well-known platform that encompasses scientific publications from various disciplines, serves as a reliable source to obtain a wide range of articles that have been reviewed by experts, enabling an in-depth examination of this research topic from various perspectives.

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### ***B. Downloading Search Result***

After conducting the search on Scopus and obtaining the results, we stored the findings in CSV (Comma-Separated Values) format. The choice of the CSV format was made due to its ease of storing data in a simple text format that can be accessed and analyzed using various computer programs. By using this format, the research data can be seamlessly integrated into data analysis software or other databases, enabling researchers to perform manipulation, visualization, and further analysis of the research outcomes.

### ***C. Running the Downloaded CSV in Biblioshiny Software***

Biblioshiny is a specialized application designed specifically for conducting bibliometric analysis, including the analysis of data originating from Scopus. This powerful tool provides researchers with the ability to visualize and analyze extensive literature data stored in CSV files from Scopus. By utilizing Biblioshiny, researchers can explore various bibliometric indicators, such as citation patterns, co-authorship networks, and co-occurrence of keywords, to gain valuable insights into the research landscape and identify emerging trends or influential publications in the field.

### ***D. Analyzing Relevant Aspects***

Based on the research discussion, a bibliometric analysis was performed on the data available in the CSV file to identify research trends, measure the impact and visibility of the research, and evaluate the development of research topics related to the subject under investigation.

By employing these steps, the study aims to utilize data sources from Scopus, download search results in CSV format, utilize the Biblioshiny application for analysis and conduct a comprehensive bibliometric analysis to explore relevant research aspects and assess the progress of research topics related to the subject being studied.

## **III. RESULT**

This research uses the term "findings" to refer to the results obtained from bibliometric analysis of scientific literature on virtual reality, self-efficacy, and interpersonal communication. These findings encompass various metrics, such as the number of publications, types of publications, keywords, authors, annual output, citations, impact factors, productive institutional affiliations, as well as thematic analysis and evolution.

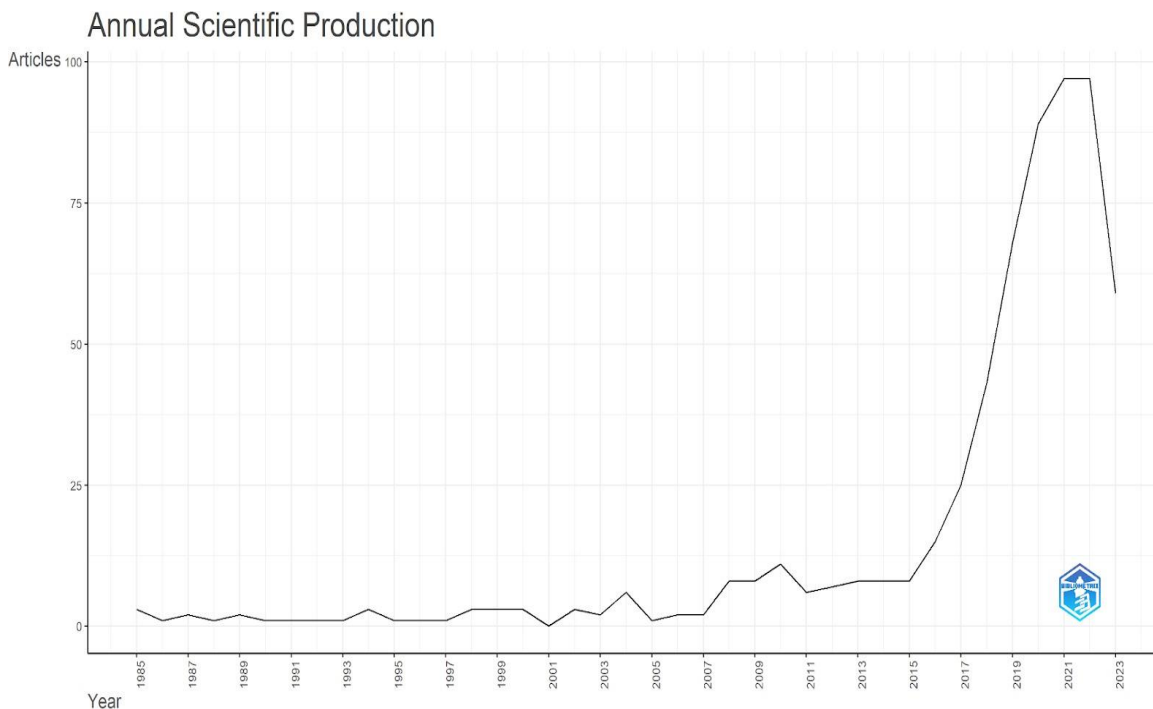
### ***A. General Information About The Analyzed Data***

A comprehensive study was conducted over 38 years, from 1985 to 2023, successfully gathering 601 documents that encompass various types of scientific publications. These documents are stored in a CSV file and have been subjected to bibliometric analysis, originating from 408 different sources. Out of the total number of documents, 282 are articles and 319 are conference papers, providing diverse insights into this research area. The information retrieval process was carried out globally and resulted in a total of 1,702 author keywords. Within the collected data range through bibliometric analysis, there were 1,860 authors involved in writing these documents, with 114 authors working independently on their respective documents.

### ***B. Annual Scientific Production and Research Trend***

The analysis of the annual scientific production trends from the 601 documents used in the research indicates that before the year 2011, the number of published articles was relatively low, with only about 3 articles per year. In 2011, there was a slight increase to 11 publications, and then a significant change occurred in 2016, with the number of publications reaching 15 documents per year. The highest peak was achieved in the years 2021 and 2022, with the number of publications reaching 97 documents. From this overview of changes, it is evident that the interest of authors in this field has been steadily increasing, especially in recent years. The data demonstrates a notable surge in scientific output, indicating a growing interest and engagement of researchers in this area, particularly in the past few years.

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## A. Annual Scientific Production

## C. Documents With the Most Citations and Impact Factor

This section discusses the most relevant or productive sources of articles. Out of the 601 documents published across 408 sources, there are the top 10 most productive sources, as shown in Table 1. The most productive source is "Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)" (27.4%), followed by "Advances in Intelligent Systems and Computing" (11.1%). The impact of each journal is measured using the H- index, which calculates the number of articles (h) from that journal that have received at least h citations. Therefore, the journal with the highest impact based on the H-index is "Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)," as seen in Table 2.

**Table 1. Most Relevant Sources**

No	Most Relevant Sources	Articles	% of Articles
1	Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	32	27.4%
2	Advances in Intelligent Systems and Computing	13	11.1%
3	IEEE Access	13	11.1%
4	ACM International Conference Proceeding Series	12	10.3%
5	ASEE Annual Conference and Exposition, Conference Proceedings	12	10.3%
6	Journal of Physics: Conference Series	11	9.4%
7	Lecture Notes in Networks and Systems	8	6.8%
8	IEEE Transactions on Learning Technologies	6	5.1%
9	IEEE Global Engineering Education Conference, Educon	5	4.3%
10	Lecture Notes Of The Institute For Computer Sciences, Social-Informatics And Telecommunications Engineering, Lnicst	5	4.3%

**Table 2. Most Impactful Source as per H Index**

No	Most Impactful Source as per H Index	H - index
	<b>Name of the Source</b>	
1	Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	7
2	IEEE Access	6
3	Academic Radiology	3
4	ACM International Conference Proceeding Series	3
5	ASEE Annual Conference and Exposition, Conference Proceedings	3



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6	Insights Into Imaging	3
7	Procedia Cirp	3
8	Procedia Computer Science	3
9	Proceedings - Frontiers in Education Conference, Fie	3
10	Proceedings of 2010 International Conference on Communication and Computational Intelligence, INCOCCI-2010	3

In Table 3, the most frequently cited article, with the highest global citation count, is authored by Laguarda J and was published in the source "IEEE Open Journal of Engineering in Medicine and Biology." The article is titled "COVID-19 Artificial Intelligence Diagnosis Using Only Cough Recordings." In this paper, the authors developed an AI sound-processing framework using cough recordings to determine whether a person is infected with COVID-19. This article's high citation count indicates its significant impact and recognition within the scientific community, showcasing the relevance and importance of their research in the context of COVID-19 diagnosis and the application of artificial intelligence in the medical field.

**Table 3. Most Cited Document**

No	Most Cited Document	Year	Citation
1	LAGUARTA J, 2020, IEEE OPEN J ENG MED BIOL	2020	272
2	CORTEZ P, 2008, EUR CONCURR ENG CONF, ECEC - FUTURE BUS, TECHNOL CONF, FUBUTEC	2008	237
3	HAJIAN S, 2016, PROC ACM SIGKDD INT CONF KNOWL DISCOV DATA MIN	2016	222
4	SIMA V, 2020, SUSTAINABILITY	2020	204
5	SCHWARTZ HA, 2013, INT CONF WEBLOGS SOC MEDIA, ICWSM	2013	182
6	DE MAURO A, 2018, INF PROCESS MANAGE	2018	173
7	PERALTA G, 2017, PROC IEEE INT WORKSHOP ELECTRON, CONTROL, MEAS, SIGNALS APPL MECHATRONICS, ECMSM	2017	122
8	BUDA M, 2019, RADIOLOGY	2019	106
9	MEHMOOD R, 2017, IEEE ACCESS	2017	103
10	CARUSO L, 2018, AI SOC	2018	96

### D. Authors and Affiliation

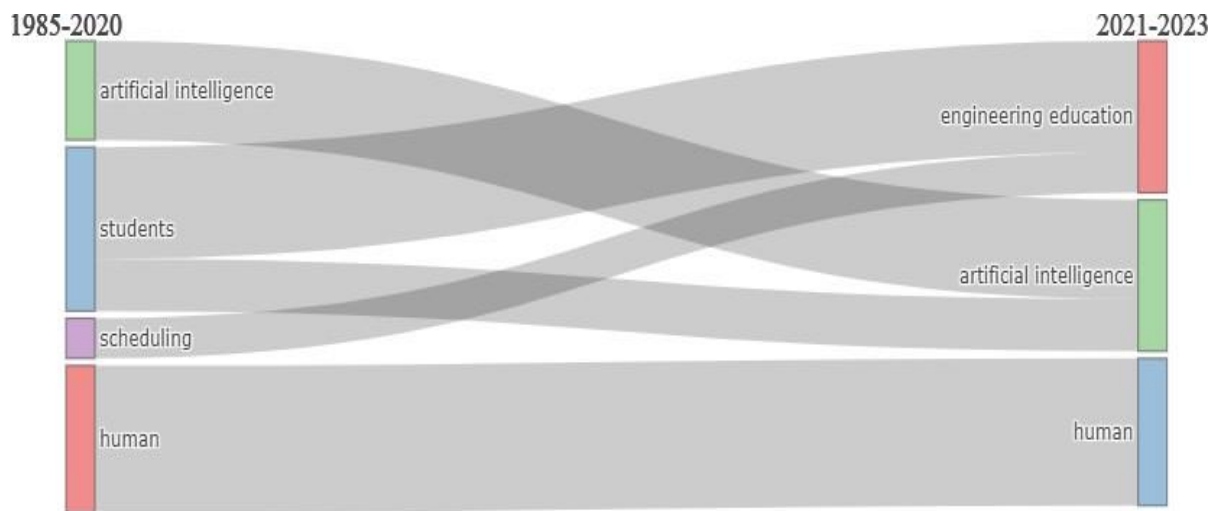
In this section, detailed information about the authors and the impact of their work is presented. Out of a total of 1,274 authors involved in the creation of the 601 documents, there is an average of 2.11 authors per document. The top 10 most productive authors are Yingying Zhang with 8 works and Kenneth R. Koedinger with 4 works, as shown in Table 4. Table 4 also displays the top 10 authors with the highest Total Citations, which are Ferran Hueto and Jordi Laguarda with an equal total citation count of 272 citations. These authors have been highly cited, indicating the significant impact and influence of their research within the scientific community. Their work has garnered recognition and has been widely referenced by other researchers, solidifying their contributions to the field of study.

**Table 4. Top 20 Author Production, and the Number of Citations**

Top 20 Author Production, and the Number of Citations			
Author	Articles	Author	Total Citations
Zhang Y	8	Hueto F	272
Koedinger KR	4	Laguarda J	272
Wang Y	4	Subirana B	272
Yang Y	4	Silva A	265
Chen Y	3	Cortez P	237
Hegyesi F	3	Bonchi F	222
Liu J	3	Castillo C	222
Vassigh S	3	Hajian S	222
Wang J	3	Gheorghe IG	204
Wang L	3	Nancu D	204



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### D. Thematic Evolution

Regarding (Figure 4), a thematic evolution analysis has been performed using bibliometric software to identify the research trends over time. The analysis involves dividing the research timeline into two thematic time slices: slice one and slice two. Thematic time slice one is depicted on the left side, while thematic time slice two is represented on the right side. This division is made to account for the transition of research from one period to another. The research span in (Figure 4) ranges from 1985 to 2020.

Thematic time slice one encompasses four sub-topics, namely artificial intelligence, students, scheduling, and humans. On the other hand, thematic time slice two, covering the period from 2021 to the present (2023), focuses on three main topics: engineering education, artificial intelligence, and humans. These topics are continuations of the ones explored in the previous time slice. In thematic time slice one, the dominant topic is students. However, in thematic time slice two, the topic of students merges with artificial intelligence. This can be explained by the fact that in the earlier period, researchers had not yet fully directed



their attention toward artificial intelligence in the context of education. Nonetheless, as time progressed, researchers realized the significance of artificial intelligence in the realm of education, leading to an increased number of studies in this area during the second thematic time slice.

### E. Thematic Map Time Slice

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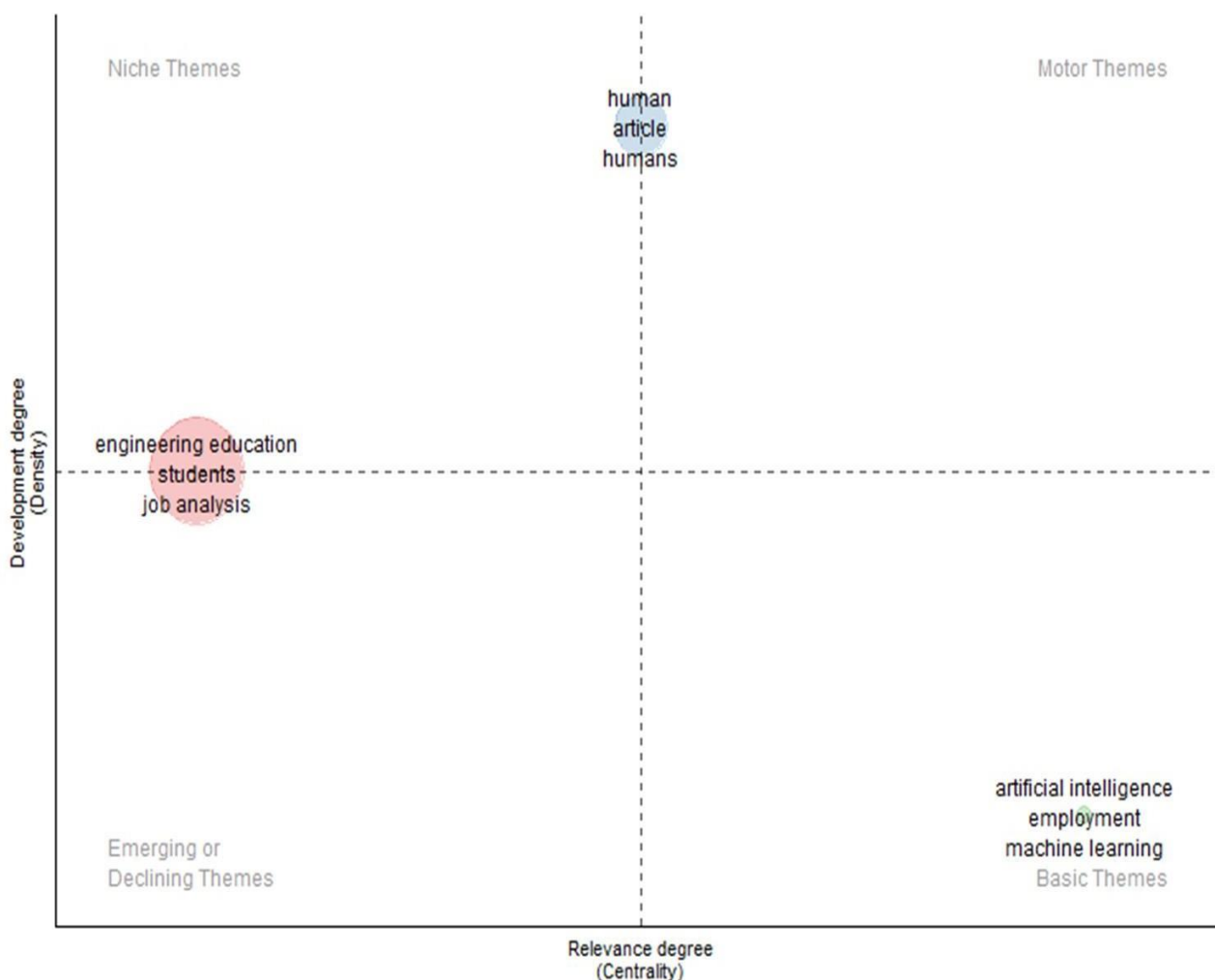
In (Figure E), which represents thematic map time slice one, there are four research topics with distinct layouts, reflecting their respective levels of importance. In the basic themes section, topics such as artificial intelligence, education, and employment are still considered fundamental and lack specific research directions. They remain the primary focus of research during that period.

On the other hand, in the emerging or declining themes section, research topics like scheduling, machine learning techniques, and intelligent systems are presented. These three topics vary in terms of importance. Some experience increasing relevance, while others have started to decline in popularity or even be forgotten.

Moving on to the Niche themes section, the research topic of humans is highlighted, indicating that it was thoroughly and extensively studied by researchers during that time.

Furthermore, in the Motor themes section, topics such as students, engineering education, and learning systems are dominant in terms of the number of research studies. The larger size of the circles in the Motor themes section signifies a higher number of articles discussing these topics compared to others.

It should be noted that the size of each circle in the image (Figure E) varies, indicating the number of articles related to that topic. The Motor themes section contains the highest number of articles compared to the other topics.



### F. Thematic Map Time Slice

In (Figure F), which represents thematic map time slice two, there are three research topics resulting from the transformation of thematic time slice one. The position of the research topics has changed due to a shift in research focus. It can be observed that between the Niche themes and Motor themes sections, the research topic of humans stands out. This topic is currently dominant in research, with studies focusing on highly specific aspects. In the Niche themes and Emerging or Declining themes sections of (Figure F), the research topics of engineering education, students, and job analysis are presented. Some of these topics are highly specific, while others are considered important or may have declined in interest. However, it is evident that the dominant circle points towards the Niche themes section, indicating that these topics are extensively researched in a specific context rather than being of general importance or decreasing interest. Finally, in the Basic theme section, there is one research topic, namely artificial intelligence, employment, and machine learning. However, these topics are still considered fundamental and do not have a clear research direction among the researchers. Thematic map time slice two, namely (Figure F), is dominated by the research

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topics of engineering education, students, and job analysis, as the number of articles discussing these topics exceeds that of other topics.

### IV. CONCLUSION

The utilization of artificial intelligence (AI) technology in education has brought both challenges and opportunities to the role of educators. As students increasingly rely on AI to complete tasks, the role of educators may become threatened [16], [17]. However, to address this, the implementation of methods like the Role Play Model and Project-Based Learning becomes crucial since these methods cannot be replicated by AI, thus ensuring that students still require guidance and active interaction from educators [18], [19]. Even though AI can offer benefits in improving learning efficiency and personalization, the key role of educators in shaping students' deep understanding and skills cannot be fully replaced by AI [20], [21]. Therefore, educators must be aware of the significance of their role in facing the AI era, ensuring the advancement of education, and keeping students competitive in a world increasingly connected to AI technology [22]. This research provides valuable insights for practitioners, policymakers, and researchers in the field of education to wisely and strategically harness the potential of AI for educational progress [23], [24].

### V. FUTURE RESEARCH DIRECTION

After successfully implementing the role-play model and project-based learning methods, students must be prepared to compete with AI in the job market. This is because, in the future, AI has significant potential to replace human positions in various fields of work [25]. For instance, researchers in China predict that around 278 million workers in China will be replaced by AI by the year 2049 [26]. Furthermore, AI has already demonstrated its ability to function as a music teacher [27]. Despite AI's capability to streamline tasks for humans, even handling complex duties like optimizing network capacity, coverage, and Quality of Service (QoS) in HetNets [28], and its prevalent use in Information and Communication Technology (ICT) for technical and vocational education and training [29], it remains crucial for humans to prepare themselves as prospective students ready to learn about AI [30]. While AI possesses remarkable abilities, there is one aspect that AI lacks, which humans inherently possess, and that is emotions. Therefore, humans continue to play a vital role in the workforce by combining professionalism in performance with a strong sense of moral conscience. In facing the AI surge in the job market, humans need to continuously adapt and innovate to remain relevant and competitive. Understanding and mastering AI technology is the key to addressing future challenges. Nevertheless, human values such as empathy, creativity, and adaptability remain critical differentiating factors that set humans apart from AI. By upholding professionalism in the workplace and being driven by a good conscience, humans can confidently face the changes brought about by AI. The emotions and inherent mental capabilities that humans possess will always be irreplaceable aspects that contribute positively to society and the job market.

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# Strengthening the Resilience and Competitiveness of MSMEs for Digital Independence of Tourism Villages Through Marketing Communication in Pesudukuh Village, Bagor District, Nganjuk Regency, East Java



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**ABSTRACT:** This research explores the positive impact of digital marketing communication strategies on the resilience and competitiveness of Micro, Small, and Medium Enterprises (MSMEs) in Pesudukuh Village, a tourist village in Nganjuk Regency, East Java. The study focuses on the development of digital self-reliance. Utilizing a qualitative descriptive approach, the research delves into how MSMEs effectively leverage digital technology to navigate market volatility and expand their market reach.

The findings indicate that MSMEs adopting digital technology not only strengthen their resilience against external disruptions but also enhance their competitive positions in the global market. Investments in digital infrastructure, improved digital literacy among MSME stakeholders, and the implementation of marketing strategies emphasizing the cultural narrative of the village have proven successful in boosting the attractiveness of Pesudukuh Village as a tourist destination.

These research outcomes offer strategic insights for policymakers and business practitioners to support a sustainable MSME ecosystem. Furthermore, the study advocates for the integration of local cultural values into the digital economy and the development of the creative economy in Indonesia. Consequently, the research contributes significantly to fostering the growth and sustainability of MSMEs, reinforcing the role of Pesudukuh Village as a success model that effectively combines local traditions with digital innovation. In conclusion, the research underscores the importance of embracing digital marketing communication strategies as a means to empower MSMEs, enhance their resilience, and propel them onto the global stage. By promoting the integration of digital technologies and cultural values, this study advocates for a holistic approach to economic development that ensures the continued success of MSMEs in the evolving landscape of the digital economy.

**KEYWORDS:** Digital marketing communication strategies, Micro, Small, and Medium Enterprises (MSMEs), Resilience

## I. INTRODUCTION

The concept of resilience has taken center stage in the study of local economic development, particularly in the face of market volatility and technological change. The resilience of Small, Micro, and Medium Enterprises (MSMEs), defined as the ability to survive, adapt, and grow amid external challenges, becomes critical in determining business continuity (Saad et al., 2022; Utami et al., 2021). In Pesudukuh Village, a tourist village in Bagor District, Nganjuk District, East Java, this resilience not only reflects the resilience of individual MSMEs but also the collective resilience of the community in advancing the local economy. The competitiveness of MSMEs is often associated with their ability to utilize innovation and technology. In today's digital era, independence in utilizing digital technology is an important tool for MSMEs to achieve competitive advantage (Maksum et al., 2020; Saputra, 2021). Especially in Pesudukuh Village, where tourism potential is an asset that has not been maximally utilized, integrating digital marketing can open up new opportunities for a wider market (Candra et al., 2022; Olazo, 2023).

Marketing communication through digital media provides a platform for MSMEs to tell community stories, expand reach, and interact with customers more effectively (Triwardhani et al., 2023). This is important in Pesudukuh Village, where cultural narratives and local products can be a significant plus. Effective utilization of marketing communication strategies can facilitate MSMEs to stand out in this fast-paced and diverse market (Olazo, 2023; Sulaiman et al., 2020).

Previous studies have shown that tourism villages with resilient and competitive MSMEs can accelerate local economic development and create jobs (Khurana et al., 2022; Putranti et al., 2020; Srinita & Saputra, 2023). However, research on digital



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independence in tourism villages such as Pesudukuh Village is still limited, especially in the context of Indonesia which has social and cultural diversity. Therefore, this study is designed to fill gaps in the literature by exploring how MSMEs in Pesudukuh Village can strengthen the resilience and competitiveness of MSME actors to improve their business through effective digital marketing communication strategies (Hidayat et al., 2021; Tambunan, 2022). This will provide insight for stakeholders in formulating policies and strategies that support the digital independence of MSMEs, which will help advance not only the village economy but also broader contributions to Indonesia's creative economy

## **II. METHODS**

This research is designed as a qualitative descriptive study that aims to explore deeply about strengthening the resilience and competitiveness of MSMEs through digital independence in Pesudukuh Village, Bagor District, Nganjuk Regency. The main sources of information in this study are central figures in the Pesudukuh Village community, including village heads who have strategic influence in the development and implementation of village policies, MSME actors who are the main subjects in improving the local economy, and marketing experts who provide professional perspectives on marketing and digital strategy. This study prioritizes the subjective perspective of the participants to gain a more comprehensive understanding of the existing phenomenon.

Data collection techniques are conducted through in-depth interviews designed to access the experiences, views, and aspirations of individual informants. Interviews are conducted using semi-structured interview guidelines that allow flexibility in discussion while still focusing on the research topic. This process facilitates the collection of data rich in context and nuance needed to analyze and understand the complexities behind MSME digital independence practices. The collected data were analyzed using content analysis methods to identify key themes, patterns, and relationships between variables emerging from informant narratives.

## **III. RESULTS OF RESEARCH AND DISCUSSION**

Along with the rapid development of digital technology, the marketing world has undergone a significant transformation. Today, resilience is not only an integral part of MSMEs' operational strategies, but also a key element in their digital communication strategies. In the context of digital communications, resilience includes the ability to quickly adapt to changing market trends, adjust marketing content to meet dynamic consumer expectations, and recover from technical or market setbacks with minimal downtime (Ariningrum & Puspita, 2022). This activity is becoming even more important in tourist villages, where MSMEs rely on digital communication to attract and retain customers from different parts of the world. In this sense, resilience is not just about surviving the crisis, but also about seizing the opportunities that arise from changes in digital consumer behavior (Syamsari et al., 2022).

The link between resilience and digital communication becomes especially evident in Pesudukuh Village, where MSMEs must navigate unique challenges such as limited access to advanced technology and digital training. Here, resilience is not only measured through the capacity to sustain business operations during disruptions, but also through the ability to embrace digital innovation and integrate efficient and effective digital marketing practices (Batubara et al., 2022). The success of digital communication in Pesudukuh Village, and widely in MSMEs, depends heavily on this understanding and implementation of strategies that combine technical resilience with creativity and content innovation.

### **3.1 Adaptation of Digital Technology as a Pillar of MSME Resilience in Pesudukuh Village**

In a dynamic market landscape where digital innovation often determines winners and those left behind, MSMEs in Pesudukuh Village stand out for their resilience. Proactive adaptation to digital technologies has proven to be the foundation of this business resilience. The use of diverse digital platforms, spanning social media to e-commerce markets, has succeeded in expanding the market reach of MSMEs far beyond traditional geographical boundaries, while optimizing their operational models for greater efficiency (Islami et al., 2021; Triwardhani et al., 2023). These initiatives, born out of the need to access a wider and more diverse market, have been shown to increase business resilience to fluctuations in the local economy.

Product innovation in MSMEs in Pesudukuh Village was revealed as an intuitive reaction to market inputs and data obtained through digital channels. However, this phenomenon goes beyond mere reaction; It represents the essence of resilience—the ability to grow, not just survive, by leveraging real-time market insights. This responsiveness, which allows MSMEs to adapt with speed and effectiveness to changing consumer preferences, marks them not only as entities that survive competition but also as innovators in fast-moving market ecosystems.

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The resilience of MSMEs in Pesudukuh Village was last strengthened through community participation in an established local marketing network. The establishment of strategic alliances among MSMEs has created beneficial synergies, enabling more efficient risk sharing and resource allocation. This engagement emphasizes the important role of communities in supporting MSME resilience, not only from a financial perspective but also in social and knowledge transfer aspects. By supporting each other, MSMEs in Pesudukuh Village show a collective resilience, enabling them to overcome economic and social challenges that arise together.

### **3. 2 Strengthening MSME Competitiveness through Digital Marketing Communication**

The increasingly digitized economic context of MSMEs in Pesudukuh Village has undergone a significant transformation in terms of the competitiveness of community products. The initiative of MSME players in utilizing digital technology, especially through the development and utilization of social media, has indicated a strategic shift towards a more interactive and personalized marketing approach. The impact of this shift is evident in the increase in sales volume and the establishment of a stronger brand identity, signifying that MSMEs have successfully devised marketing strategies that allow products to compete effectively in the wider market.

Analysis of MSME practices in Pesudukuh Village shows that the cultivation of local value and product authenticity play an integral role in creating competitive advantage. This is reflected in the positive response of consumers to marketing that prioritizes cultural aspects and product authenticity. By responding to authenticity-oriented consumer preferences, MSMEs have succeeded in not only increasing differentiation in the market but also strengthening relationships with customers, both from local and tourist circles.

The fusion of innovative digital marketing approaches with rich local values has proven to be a fruitful strategy for MSMEs in Pesudukuh Village. This integration has provided a platform for MSMEs to build and maintain a strong brand identity, which is crucial in attracting and retaining a customer base. Data shows that MSMEs that embrace cultural aspects in their digital marketing tend to have a higher level of business continuity and are able to develop sustainable markets.

Overall, the findings show that MSMEs in Pesudukuh Village have successfully adapted and integrated the latest marketing technology, while still staying true to their heritage and cultural values. This combination of technology and tradition not only increases their resilience and competitiveness but also paves the way for growth and expansion. A strong digital presence, along with respect for local heritage, has positioned these MSMEs at the forefront of capitalizing on the opportunities offered by the digital economy.

### **4.3 Progress of MSME Digital Independence in Pesudukuh Village as a Tourist Destination**

In the context of Pesudukuh Village which is developing as a tourism village, digital independence has become an important aspect that supports local economic growth. Research shows that MSMEs in this village have made significant steps in building and optimizing their digital infrastructure. Investment in broadband technology, the construction of e-commerce websites, and the use of digital payment systems are some examples that mark the development of the village's digital infrastructure. This initiative not only increases the village's self-reliance in the technological aspect, but also strengthens the foundation for sustainable economic growth.

Improving digital skills among Pesudukuh MSMEs has become the main focus in achieving digital independence. Training programs aimed at improving digital literacy and online marketing have been implemented, resulting in a marked improvement in the ability of MSMEs to market and sell products online. These new skills enable MSMEs to more efficiently manage their business operations and more effectively reach a wider market, a crucial step in improving their competitiveness in the global arena. Marketing initiatives that have been designed by Pesudukuh MSMEs specifically target to highlight the characteristics and uniqueness of the village as a tourist destination. With marketing strategies that focus on storytelling and authentic experiences, MSMEs have succeeded in attracting domestic and international tourists. Marketing that utilizes visual media and engaging narratives has proven effective in increasing the visibility of villages in the tourist scene, as well as in promoting local products and services. The results also indicate that MSMEs in Pesudukuh Village have become more independent in the use and management of digital technology. They have developed their own websites, manage social media with scheduled content and clear targets, and utilize analytics tools to understand consumer behavior. Mastery of these digital tools not only strengthens their position in the digital economy but also gives them greater control over brand narratives and relationships with customers. Overall, the digital independence gained by MSMEs in Pesudukuh Village creates a positive impact on the village economy. This success reflects the great potential of digital technology integration in MSME marketing and business, especially in the context of tourism villages. The agility and adaptation of MSMEs to digital technology not only strengthens their resilience in the face of market changes but also adds value to the tourism experience offered by Pesudukuh Village.

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## V. CONCLUSIONS

Research conducted in Pesudukuh Village has shown that the resilience and competitiveness of MSMEs can be strengthened through the adoption and integration of effective digital marketing communication strategies. Digital independence, manifested through the use of online platforms for marketing and sales, has helped MSMEs in Pesudukuh Village not only to survive in fluctuating market conditions but also to thrive in a competitive digital ecosystem. Investment in digital infrastructure, the development of digital skills of MSME actors, and the implementation of marketing initiatives that emphasize the cultural uniqueness of the village, have proven effective in increasing the visibility and attractiveness of Pesudukuh Village as a tourist destination, while strengthening the position of MSMEs in the local and global economy. Furthermore, these findings provide significant implications for policymakers and business practitioners in formulating strategies that support sustainable economic growth in Pesudukuh Village. By prioritizing digital independence and blending it with authentic local values, MSMEs in Pesudukuh Village have the potential to not only increase their own economic capacity but also make a broader contribution to the development of Indonesia's creative economy. These results underscore the importance of strategic partnerships between governments, the business sector, and communities to facilitate an environment conducive to MSME growth, which will ultimately enrich the tourism experience and generate inclusive and sustainable economic benefits. Despite the significant strides made in Pesudukuh Village towards digital independence, it is imperative to recognize certain limitations. Firstly, there may exist a digital divide, wherein not all MSMEs benefit uniformly from the digital infrastructure and skills development initiatives. Inclusivity should be a primary concern, ensuring that all community members, irrespective of their background, have equal access to and can participate in the digital economy. Additionally, the sustainability of the current success should be scrutinized, considering potential challenges in maintaining and upgrading digital infrastructure over time. Cybersecurity is another looming concern, as increased reliance on digital platforms may expose businesses and tourists to potential cyber threats. Furthermore, there is a risk of dependency on tourism, and economic fluctuations or unforeseen events could adversely impact the village's economy. Environmental considerations must also be taken into account, as the integration of digital technology in tourism may have unintended consequences on the local environment. Data privacy issues loom large, necessitating clear guidelines to ensure responsible and ethical use of customer data. Continuous training and adaptation are crucial due to the ever-evolving nature of digital technology, and infrastructure challenges such as network reliability may impede day-to-day operations. Lastly, as Pesudukuh Village embraces the digital economy and tourism, there is a need to strike a delicate balance between economic development and the preservation of the village's cultural authenticity, safeguarding its unique identity in the face of increasing digital integration. Addressing these limitations will be pivotal in ensuring the sustained success and positive impact of Pesudukuh Village's digital independence initiatives on the local economy.

## ACKNOWLEDGMENT

The completion of this article would not have been possible without the invaluable support and guidance received from the School of Vocational Studies, IPB University. We extend our deepest gratitude to the faculty members and staff of the Communication Digital and Media program for their unwavering encouragement and assistance throughout the research and writing process. Their expertise and insights have significantly enriched the content of this article. We also express our appreciation for the conducive academic environment and resources provided by the university, which have been instrumental in the development of our understanding and skills in the field of digital communication and media. This acknowledgment is a tribute to the commitment and excellence of the academic community at IPB University, and we are sincerely thankful for the opportunity to be a part of this esteemed institution.

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## The Effect of Secretome Hypoxia Mesenchymal Stem Cells (SH-MSCs) in Reducing P65 and TNF- $\alpha$ Gene Expression in Polycystic Ovary Syndrome



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**ABSTRACT:** Polycystic Ovary Syndrome (PCOS) is an endocrine and metabolic syndrome characterized by a chronic inflammation and an increase of androgen production in ovarian theca cells.<sup>1</sup> The expression of the p65 gene and TNF- $\alpha$  was found to be intracellular inflammation markers in PCOS patients. Previous studies have indicated that the *Secretome of hypoxia mesenchymal stem cells* (SH-MSCs) has anti-inflammatory properties and is widely reported to be effective in treating various diseases. An experimental study by using the *Post Test Only Control Group Design* method. This study involved 24 female wistar rats divided into 4 groups. Group K1 consisted of healthy rats, K2 PCOS rats without any treatment, K3 PCOS rats treated with 200 $\mu$ L dose of SH-MSCs, and K4 PCOS rats treated with 400 $\mu$ L dose of SH-MSCs. On the 33rd day, the rats underwent an examination of the p65 and TNF- $\alpha$  gene expression. The result of Shapiro-Wilk test and Levene test indicated that the data were normally distributed and homogenous. In One-Way ANOVA test, groups K III and K IV of PCOS rats showed significantly lower changes in the expression of the p65 and TNF- $\alpha$  genes compared to the control group ( $p < 0.05$ ). The result of Kruskal-Wallis test and Mann-Whitney test showed significant differences in TNF- $\alpha$  gene expression among the groups ( $p < 0.05$ ). While, the post hoc Tamhane test showed significant differences in p65 gene expression among the groups ( $p < 0.05$ ). SH-MSCs given at a dose of 200  $\mu$ L/kgBW and 400  $\mu$ L/kgBW had an effect in reducing the expression of the p65 gene and TNF- $\alpha$  gene on female wistar rats of PCOS model.

**KEYWORDS:** PCOS, P65, SH-MSCs, TNF- $\alpha$ , Gene Expression

### I. INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is an endocrine and metabolic syndrome characterized by a chronic inflammation and an increase of androgen production in ovarian theca cells (Chugh et al, 2021). A chronic inflammation plays a central role in the etiopathology of PCOS. The expression of the p65 and TNF- $\alpha$  genes, intracellular inflammation markers, was found in women with PCOS (Dokuzeylul et al, 2022 ; Garg et al, 2023). Until now, the standard therapies of PCOS used have not been effective and require a long-term use, leading to mild to severe side effects (Abdalla et al, 2020).

Hormonal therapy, as a first-line treatment, has side effects on metabolism, digestion, and can even be teratogenic (Bulsara et al, 2021). Preclinical and clinical studies have shown that SH-MSCs contains various anti-inflammatory cytokines or immunomodulatory significantly higher than *secretome normoxia MSCs* (SN-MSCs), such as *transforming growth factor* (TGF- $\beta$ ), *TNF $\alpha$ -stimulated gene 6* (TSG6), *prostaglandin E2* (PGE2), IL-10, and *insulin-like growth factor 1* (IGF-1), and lower levels of proinflammatory cytokines like IL-6 and IL-8 (Xue et al, 2022 ; Putra et al, 2021). A chronic inflammation plays a central role in the inflammatory symptoms of PCOS. Increased levels of inflammatory markers such as *C-Reactive Protein* (CRP), *Tumor Necrosis Factor-Alfa* (TNF- $\alpha$ ), *interleukin* (IL)-6, IL-18, *Monocyte Chemoattractant Protein-1* (MCP-1), and *Acute-Phase Serum Amyloid A* (APSAA) have been found in the serum levels and follicular fluid of women with PCOS. Previous research reported that the increased levels of NF- $\kappa$ B p65, an intracellular inflammation marker, have been demonstrated in women with PCOS (Dokuzeylul et al, 2022).

Based on clinical, biochemical, and molecular studies, there is an evidence that TNF- $\alpha$  contributes fivefold to the etiopathogenesis of PCOS (Garg et al, 2023). TNF- $\alpha$  induces an inflammatory response as a normal physiological function for ovulation and affects follicular atresia, adiposity, insulin resistance, ovarian apoptosis, increased ovarian steroid secretion, anovulation, and hyperandrogenism (Physiology et al, 2013). Numerous studies have reported that SH-MSCs are capable of



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suppressing the secretion of pro-inflammatory cytokines in various pathological diseases (Sazli et al, 2023 ; Zhao et al, 2022). However, the administration of SH-MSCs on the expression of the p65 and TNF- $\alpha$  genes in the rats of PCOS model has been relatively understudied.

## II. MATERIAL AND METHODS

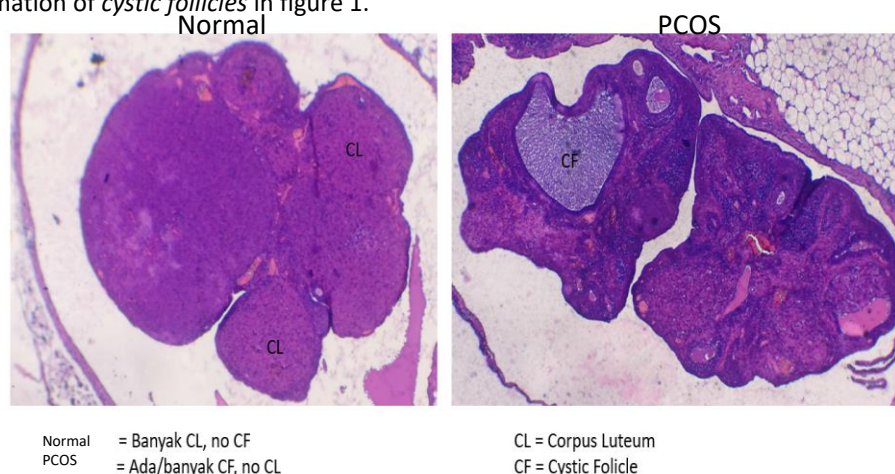
The research was conducted in the laboratory of Stem Cell and Cancer Research in Semarang from July to August 2023. This research has gone through an ethical review test from the Ethics Committee of Medical Faculty of Sultan Agung University (No.341/VIII/2023/Bioethics commission). The sample was prepared by mixing SH-MSC with 0,9% Nacl to achieve a concentration of 250  $\mu$ L/g. SH-MSCs at doses of 200 mg and 400 mg each contained SH-MSCs with 200  $\mu$ L (K3) and 400  $\mu$ L (K4) dose of secretome, respectively. The Isolation Procedure of *Mesenchymal Stem Cell* from *Umbilical Cord* was conducted inside biosafety cabinet class 2, using sterile equipment, and performed with high sterility techniques. Subsequently, the Hypoxia TFF process was conducted.

This research used 24 white female strain wistar rats. The rats were divided into 4 groups that have met the inclusion criteria. Group K1 were healthy rats, K2 were PCOS rats without treatment, K3 were PCOS rats treated with a 200 $\mu$ L dose of SH-MSCs, and K4 were PCOS rats treated with a 400 $\mu$ L dose of SH-MSCs. On day 23, sample validation was conducted by observing the cytological appearance of the epithelium, ovarian follicles, and blood sugar levels. On day 33, samples were examined to observe the expression of the p65 and TNF- $\alpha$  genes. The analysis of p65 and TNF- $\alpha$  used *Real Time-Polymerase Chain Reaction* (RT-PCR). The PCR products were then analyzed using qRT-PCR illumine. The increase of gene expression was analyzed in the ratio of increase against housekeeping gene by using EcoStudy software.

The data were presented descriptively using a ratio data scale. The data were then tested for normality using the Shapiro Wilk test and homogeneity testing using the Levene test. The distribution of data on cholesterol, IL-6, and MDA levels obtained normal and homogeneous results, so One Way Annova test was continued ( $p < 0.05$ ) then followed with the post hoc *LSD* test. The Kruskal Wallis test and Man Whitney test were carried out to see the expression of the TNF- $\alpha$  gene between groups, and the *post Hoc Tamhane* test was carried out to see the expression of the p65 gene between groups.

## III. RESULT

MSCs was isolated in *Stem Cell and Cancer Research* (SCCR) laboratory of Medical Faculty of Sultan Agung Islamic University, Semarang by using umbilical cord of 21-day-old pregnant rat. Furthermore, the result of isolation was cultured on plastic flask. The result of MCS showed an image of adherent cells at the flask's bottom with morphology resembling spindle-like cells. The research finding showed that MSCs was capable of differentiating into osteocyte and adipocyte, which can be detected through calcium deposit and the presence of red-stained fat in *Alizarin Red* and *oil Red dye* staining in both osteogenic and adipogenic cultures, respectively. Validation was performed on the PCOS rat model, and it was confirmed that DHEA induced ovary, as evidenced by the formation of *cystic follicles* in figure 1.



**Figure 1. Comparison of HE painting results of healthy mice with PCOS mice**

**Table 1. Comparison of testosterone levels in healthy mice and PCOS mice**

Group	Testosteron Mean (pg/mL)	Stdev (pg/mL)
Healthy	46.67	20.82
PCOS	80	26.46

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SH-MSCs was able to significantly reduce p65 and TNF- $\alpha$  levels in PCOS rats in a dose-dependent manner. Based on the research results, it was showed that the levels of p65 and TNF- $\alpha$  in the K3 group were the highest, followed by the K4 group. In this research, the average expression of the TNF- $\alpha$  gene in the control group was found to be the highest, with an average gene expression value of 2.2006 times, followed by the SH-MSC treatment group of 200  $\mu$ l/kg with an average value of 0.9019 times. The lowest average expression of the TNF- $\alpha$  gene was observed in the 400  $\mu$ l/kg treatment group with an average gene expression value of 0.7192 times, as shown in Figure 2. SH-MSC was able to significantly reduce TNF- $\alpha$  levels in male Wistar rats with a PCOS-like model, depending on the dosage.

In this research, it was found that the average p65 levels to be the highest in the control group with an average value of 2.2734, followed by the average p65 levels in the SH-MSC treatment group of 200  $\mu$ l/kg with an average value of 0.7264. Furthermore, the average p65 levels in the SH-MSC treatment group of 400  $\mu$ l/kg were 0.5576. It was found that there was significant difference between K2 and K3 (0.009), as well as between K2 and K4 (0.008), indicating meaningful differences as seen in Figure 3. However, there was no significant difference between K3 and K4 (0.674) based on the Post Hoc Tamhane test results. The analysis results also showed that the administration of SH-MSCs at 200 $\mu$ l and 400 $\mu$ l significantly reduced the p65 expression in female Wistar PCOS rats.

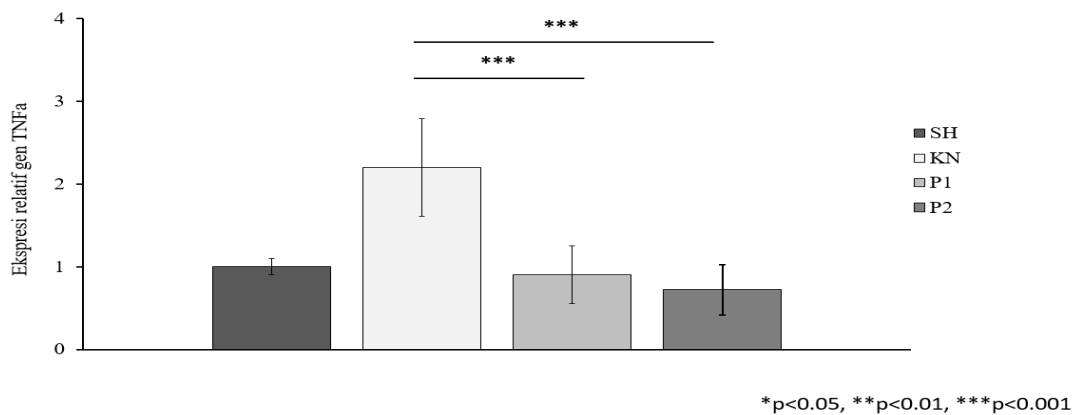


Figure 2. TNF- $\alpha$  gene expression in all study groups

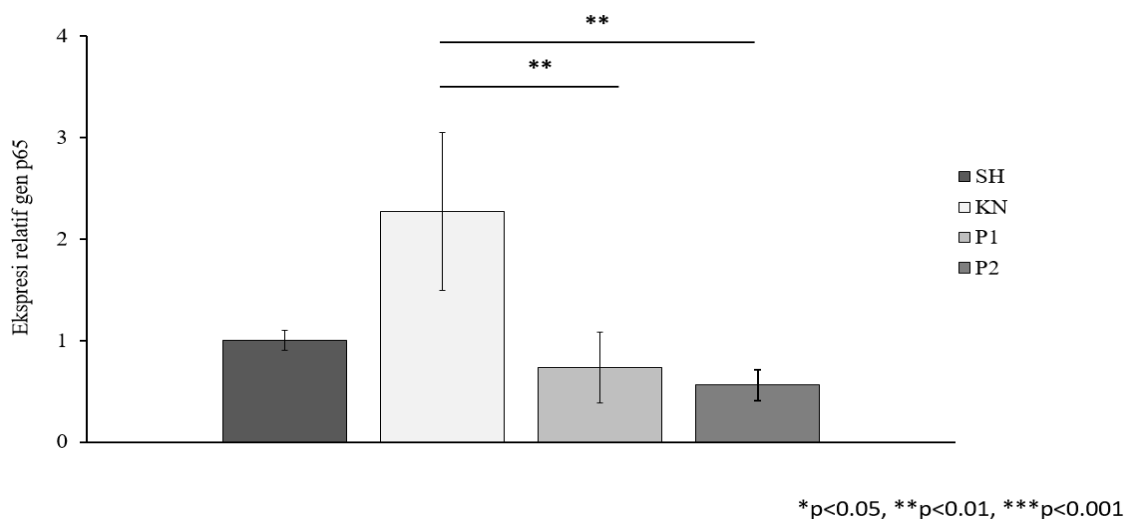


Figure 3. P65 gene expression in all study groups

### IV. DISCUSSION

A chronic inflammation plays a central role of PCOS symptoms. It has been found that the serum levels and follicular fluid inflammatory markers such as CRP, TNF- $\alpha$ , IL-6, IL-18, MCP-1, and APSAA are increased in women with PCOS. Previous studies have reported that an increase in NF- $\kappa$ B p65 levels, an intracellular inflammation marker have been demonstrated in women with PCOS (Dokuzeylul et al, 2022). In this research, it was found that the TNF- $\alpha$  levels in the K4 group (SH-MSCs 400 $\mu$ l) significantly decreased compared to the group of rats ( $p=0.000$ ).

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These results indicated that the administration of a 400 $\mu$ l dose of SH-MSCs can reduce the inflammatory process. This may be attributed to the influence of IL-10 contained within SH-MSCs, which acts as an anti-inflammatory agent by inhibiting the NF- $\kappa$ B pathway through the mechanism of IL-10 STAT3 Pathways (Wilson et al, 2013 ; Muhl et al, 2019). This research also demonstrated that the TNF- $\alpha$  levels in both the K4 group (SH-MSCs 400 $\mu$ l) and the K3 group (administration of SH-MSCs 200 $\mu$ l) decreased compared to the group of PCOS rats (p=0.000).

This research aligned with the previous researches that used MSCs, where there was an increase in the number of corpus luteum after being given MSCs. In the context of MSC mechanism in wound areas, it is believed that they contribute through cell differentiation and promotion of vascularization by releasing PDGF (Baju et al, 2011). The increase of *cystic follicles* and testosterone hormone are caused by inflammation in the ovary. Secretome can mediate paracrine mechanisms within stem cells. Based on the research findings, there was a suppression of granulosa cell apoptosis.

This research showed that the expression of TNF- $\alpha$  and p65 in both the K4 group (SH-MSCs 400 $\mu$ l) and the K3 group (administration of SH-MSCs 200 $\mu$ l) decreased compared to the control group (p=0.000). The decrease in TNF- $\alpha$  and p65 levels can be associated with the presence of IL-10 in the SH-MSC secretome. IL-10 is believed to have the ability to induce a polarization shift from M1 to M2, which has anti-inflammatory properties through the IL-10 STAT3 pathway (Saraiva et al, 2010).

Cytokine IL-10 produced by SH-MSCs triggers STAT3 phosphorylation and forms homodimers that move to nucleus to activate gene expression that is responsive to STAT3, including SOCS3. SOCS3 also plays a role in inhibiting NF- $\kappa$ B translocation to the nucleus, resulting in the suppression of pro-inflammatory gene expression. Further comparisons are needed between various types of treatments, such as standard drugs used to treat PCOS, and therapy using SH-MSCs. The testosterone levels in ovarian tissue samples were measured by using the ELISA method. The absorbance values obtained were 46.67 pg/mL in healthy rats and 80 pg/mL in PCOS rats (Table 1). The increase of high testosterone levels indicated that PCOS symptoms have developed in the animal model. The GDP values in healthy rats on day 23 showed 94.67 mg/dL, while in PCOS rats, it was 107.67%.

### V. CONCLUSIONS

SH-MSCs given at a dose of 200  $\mu$ L/kgBW and 400  $\mu$ L/kgBW had an effect in reducing the expression of the p65 gene and TNF- $\alpha$  gene on female wistar rats of PCOS model.

### ACKNOWLEDGEMENT

This research did not receive special funding from any institution in the public, non-profit or commercial sectors.

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## The Influence of Direct Instruction (Di), Teaching Games for Understanding (TGfU) and Motivation on Learning Outcomes of Volleyball Underpass



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**ABSTRACT:** This research aims to determine the interaction between the Direct Instruction (DI) and Teaching Games for Understanding (TGfU) learning models with learning motivation (high and low) on the learning outcomes of volleyball underpass. Experimental method with a quantitative approach in class VII. The data collection technique uses a measurement test on the learning outcomes of volleyball underpassing and uses a questionnaire to measure student motivation. Two-way ANOVA (multiple variance analysis) Tukey test analysis technique if there is an interaction. The results of data analysis show that there is a significant difference, namely the TGfU model has a higher value, namely 15.85, compared to the DI model with a value of 10.55 in learning outcomes for volleyball bottom passing. The research conclusion is that there is an interaction and difference in influence between the DI and TGfU models with learning motivation on the learning outcomes of volleyball underpassing, and there is a difference in influence between students who have high and low learning motivation on learning outcomes for volleyball underpassing.

**KEYWORDS:** Influence of DI & TGfU, Volleyball Underpass

### INTRODUCTION

Student learning outcomes will improve if a teacher is able to apply a learning model that is suitable for student characters. A teacher must be able to create and develop the right learning model for their students. In addition, given the development of the teaching system and the variety of learning models, teachers must be able to apply and vary learning models when teaching at school so that students are motivated to follow the lessons taught and the objectives of the learning model can be achieved. However, the facts in the field are not the case, there are still teachers who have not been able to motivate students in learning, one of which is seen at the State Junior High School 3 Rupert, Bengkalis Regency.

Learning is a way that can improve a person's life, through learning a person can gain as much knowledge as possible which can be used to do something for a better life. Whether or not a person is active in learning is influenced by various factors. One of the factors is motivation. Someone who has motivation to learn, indirectly has a goal or ideal that is realized (Palittin, Wolo & Purwenty, 2019, p.102). Student learning motivation is closely related with the teaching and learning process and the teacher's teaching strategy. Effective teaching strategies must be tailored to the needs of the class and the conditions of the students where the teaching and learning process takes place. The achievement of learning objectives or learning outcomes depends on how the teaching and learning process has been designed and implemented. Based on initial observations, the effectiveness and quality of teaching at State Junior High School 3 of Rupert, Bengkalis Regency is still the main obstacle faced in the physical education learning process.

There are still many students who are less motivated in participating in physical education lessons, many students are lazy in following the physical education subject matter provided, students easily feel tired in participating in lessons, and students feel bored because the learning model used by the teacher is just that without any changes every time the learning meeting. Learning models that are considered appropriate for junior high school students are Direct Instruction (DI) and Teaching Games for Understanding (TGfU). Physical education learning with DI and TGfU approaches can be used as an effort to make students enthusiastic and actively participate in physical education learning. The TGfU learning model is also very appropriate to be applied in physical education learning on volleyball learning materials at school.

The TGfU model has several advantages, including: (1) to facilitate the development of technical skills and (2) empower children to learn on their own and take responsibility; (3) to assess tactical transfer throughout the game; and (4) increase fun and

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enjoyment in playing games (Wang & Ha, 2013). Furthermore, in the research results of Yudha et.al (2017) that the TGfU type learning model has a significant effect on improving the learning outcomes of basic soccer control passing techniques in students.

In addition to the TGfU model, there are learning models that can be used to facilitate physical education learning, namely DI learning (Direct Instruction) is teacher-centered learning that emphasizes clear communication. In this approach, 'the effectiveness of education for all learners depends largely on the provision of quality teaching by competent teachers, equipped with effective strategies', (Rowe as cited in Ewing, 2011). Therefore, these two models are suitable to be tried in school learning, given that some schools have not yet implemented the DI and TGfU models.

### RESEARCH METHODS

This type of research is an experiment with a quantitative approach which was carried out in September - October 2023 at the State Junior High School 3 Rupert, Bengkalis Regency. A total of 208 students were selected as the population, then using random sampling techniques to select a sample in the form of class VII in the 2023/2024 school year as many as 72 students. Data collection techniques used performance tests to measure the learning outcomes of volleyball lower passes, then questionnaires to measure student motivation.

Testing the validity of the instrument in this study was carried out by professional judgment, in this study Mr. Prof. Dr. Pamuji Sukoco, M.Pd., and Prof. Dr. Suharjana, M. Kes. The data from the expert validator's assessment results from the assessment instrument validation sheet were analyzed to determine the content validity of the instrument. Based on the results of this analysis, the instruments in this study are said to be valid and suitable for use in this study.

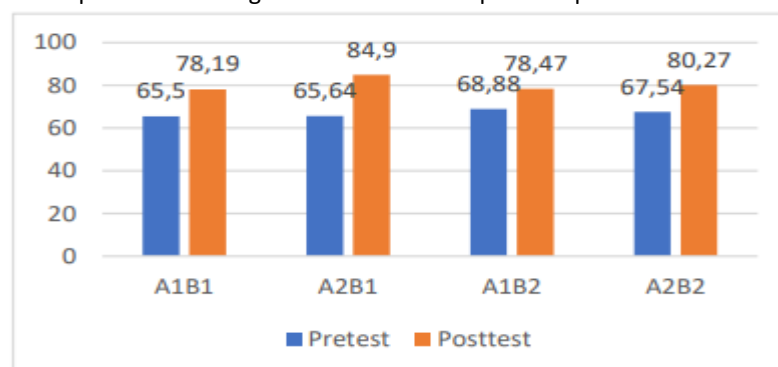
Hypothesis testing was carried out using two-way ANOVA. Multiple variance analysis techniques are often referred to as two-way variant analysis techniques. This multiple variance analysis technique is used to distinguish the mean of several data distributions of research subject groups conducted at once for two types of treatment variables (Budiwanto, 2017). If it is proven that there is an interaction, a further test will be carried out, namely the Tukey test using the SPSS version 23 for windows software program with a significance level of 5% or 0.05.

### RESEARCH RESULTS AND DISCUSSION

#### Results

The research process will be conducted in four stages. (1) conduct a test to obtain initial data regarding the assessment of learning motivation. Stage (2) students use performance tests and knowledge tests to get the learning outcomes of volleyball lower passing. Stage (3) students will get treatment with DI and TGfU learning models conducted 12 times a meeting. At stage (4) students will be given performance tests and knowledge tests to get the final data on learning outcomes of volleyball lower passes which are carried out at the end of the post-test).

Descriptive statistic of the pretest and posttest learning outcomes of underpass are presented in the diagram as follows:



Description:

A1B1: Learners using Direct Instruction (DI) learning model with high motivation.

A2B1: Students using Teaching Games for Understanding (TGfU) learning model with high motivation.

A1B2: Learners using Direct Instruction (DI) learning model with low motivation.

A2B2: Learners using the Teaching Games for Understanding (TGfU) with low motivation.

The results of data analysis in testing this hypothesis are: (1) The hypothesis of the difference in the influence of the Direct Instruction (DI) learning model den Teaching Games for Understanding (TGfU) on the learning outcomes of volleyball underpass.

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Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Learning Model	505.779	1	505.779	22.271	.000

Based on the results of the data analyzed, the Teaching Games for Understanding (TGFU) learning model on learning outcomes of underpass volleyball with a total average value of 15.85 is higher than the Direct Instruction (DI) learning model group on learning outcomes of underpass volleyball with an average total value of 10.55. Then (2) the hypothesis of differences in influence between students who have high motivation and low motivation on the learning outcomes of volleyball underpasses:

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Motivation	344,546	1	344,546	15,172	.000

Based on the results of the data analyzed, students who have high motivation with an average value of 15.39 are better when compared to students who have low motivation with an average value of 11.01. Then (3) the interaction hypothesis between DI and TGFU learning models and motivation (high and low) on the learning outcomes of volleyball lower passes:

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Learning Model* Motivation	106,345	1	106,345	4,683	.034

Based on the previous table, it can be seen in the significance section of 0.034. Decision making if the significance level  $<0.05$  then there is interaction, meaning that the significance level value of  $0.034 < 0.05$ , then there is a significant interaction between DI and TGFU learning models and motivation (high and low) on learning outcomes of volleyball underpass. After there is an interaction between the learning model and motivation on the learning outcomes of volleyball underpass, then further tests are carried out with the Tukey test. The Tukey test results are shown in the following table:

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.
A1B1	A2B1	-7.7315*	1.5885	0
	A1B2	1.9444	1.5885	0.614
	A2B2	-0.9257	1.5885	0.937
A1B2	A1B1	7.7315*	1.5885	0
	A1B2	9.6759*	1.5885	0
	A2B2	6.8057*	1.5885	0
A2B1	A1B1	-1.9444	1.5885	0.614
	A2B1	-9.6759*	1.5885	0
	A2B2	-2.8702	1.5885	0.279
A2B2	A1B1	0.9257	1.5885	0.937
	A2B1	-6.8057*	1.5885	0
	A1B2	2.8702	1.5885	0.279

Based on the table above, the results of the Tukey test calculation on the asterisk sign (\*) indicate that the pairs that have interactions or pairs that are significantly different (significant) are: (1) A1B1-A2B1, (2) A1B2-A1B1, (3) A1B2-A1B2, (4) A1B2-A2B2, (5) A2B1-A2B1, (6) A2B2-A2B1.

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### DISCUSSION

The interaction results show that in this study, the main factors in the form of two factors show a significant interaction. This means that within each cell or group, there is a difference in the effect arising from combining each group. The following are the pairs that show significantly different effects.

- (1) The group of students using the Teaching Games for Understanding learning model with high learning motivation is better than students using the Direct Instruction learning model with high learning motivation with a p value  $<0.05$ .
- (2) The group of students using the Teaching Games for Understanding learning model with high learning motivation is better than the group of students using the Direct Instruction learning model with low learning motivation with a p value  $<0.05$ .
- (3) The group of students using the Teaching Games for Understanding learning model with high learning motivation is better than the group of students using the Teaching Intruccion learning model with low learning motivation with a p value  $<0.05$ .

### CONCLUSION AND SUGGESTION

#### Conclusion

The research conclusion is that there are interactions and differences in the influence between DI and TGfU models with learning motivation on learning outcomes of volleyball underpass, and there are differences in the influence between students who have high and low learning motivation on learning outcomes of volleyball underpass.

#### Suggestion

For further research, especially in examining other variables, this learning model can be developed specifically and more deeply.

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## The Legitimacy of Tax Imposition on Bitcoin in the Commodity Futures Exchange



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**ABSTRACT:** Bitcoin is cryptocurrency assets traded on the physical market of cryptocurrency assets on commodity future exchanges. The purpose of this research is to determine and explore the legal status and regulations regarding taxation of bitcoin conducted on commodity future exchanges. This research is conducted of secondary using a normative juridical method, which involves the use and collection of secondary data and focuses on legal regulations. The result of the research indicate that the legal status of bitcoin taxation on commodity future exchanges has been regulated by applicable laws and is recognized based on legal theories and principles.

**KEYWORDS:** Analysis, Legal Status, Tax, Commodity Futures Exchanges, Bitcoin

### I. INTRODUCTION

Taxes constitute one of the state's revenues obtained through premiums paid by the public to the government for organization, control, regulation, and redistribution to the community in various forms of infrastructure such as roads, rural roads, bridges, and other public facilities like airports, hospitals, and schools managed by the government for the well-being of the general public without limitation to specific social groups, races, religions, and ethnicities. Taxation is a fundamental aspect of community welfare development in accordance with the state's objectives outlined in the Preamble of the Constitution of the Republic of Indonesia of 1945. This aligns with Article 1, paragraph (1) of Law Number 28 of 2007 concerning the Third Amendment to Law Number 6 of 1983 concerning General Provisions and Procedures for Taxation. Tax collected from the public represents a significant potential for both the community and sustainable economic growth in accordance with the principles of Pancasila and the Constitution of the Republic of Indonesia of 1945. This is achieved through various actions within the legal provisions of fiscal policies, especially in taxation.

Strategic steps that can be taken to achieve the objectives of fiscal policy in taxation include implementing improvements to deficiencies and losses, as well as increasing tax rates through legal provisions with the aim of enhancing the effectiveness and efficiency of tax revenue, expanding the tax base, establishing a tax system, and making changes to tax administration based on certainty and fairness. Additionally, fostering awareness among taxpayers to fulfill their tax obligations is crucial in this endeavor.

The government, as the tax policy maker and collector, must balance the acceleration of changing business models and dynamic globalization by employing various means to enhance tax amnesty programs, enforce laws, improve automatic exchange of information systems on financial accounts, and enhance service functions to the public, especially for investors involved in cryptocurrency transactions. The government is taking concrete steps toward improvement in the field of taxation, focusing on data-based technology, trade processes, tax policies, tax amnesty programs, and related institutions to increase tax rates.

The dynamic changes in business patterns and globalization are undoubtedly driven by the advancements in information, knowledge, and technology. These developments have permeated and touched every sector, whether in health, defense, agriculture, plantation, and even the economic sector. The economic sector has experienced rapid progress, marked by significant changes and advancements. Notably, in the field of economics, transactions that initially involved bartering or exchanging goods have evolved into transactions using physical currency as a legitimate medium of exchange. The progress in the economic sector extends beyond this point, with further developments such as the introduction of online shopping systems and cryptocurrency investments.

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The burgeoning Crypto investment trend in Indonesia has experienced rapid progress and has gained popularity among a segment of the population, marked by the increasing crypto transactions, particularly involving Bitcoin, and the growing number of individuals investing, referred to as investors, on one of the Indonesian crypto platforms, namely the Indodax platform (Dhimas Candra & Andrianto, 2022: 140-146). The government, acting as the tax collector, acknowledges this phenomenon and is paying closer attention to the steps needed to levy taxes on crypto investors, aiming to enhance the nation's wealth for national development. The concept of tax, as per Article 1 paragraph 1 of Law Number 28 of 2007 concerning the Third Amendment to Law Number 6 of 1983 concerning General Provisions and Procedures for Taxation, is defined as the participation given by the public to the government for the country's economic growth, which is obligatory for the development of the broader community.

there is a need for a supervisory authority to oversee the significant growth of crypto investments in Indonesia. The Ministry of Trade (Kemendag) through the Commodity Futures Trading Supervisory Agency (Bappebti) is the institution involved in supervising the physical trading of crypto assets. The existence of this supervisory institution aims to ensure the security of trading transactions, verify compliance with regulations, and promote transparency. So far, the Indonesian government has established a legal framework to regulate the trading of crypto assets in the country through several regulations, including Law No. 10 of 2011 concerning Amendments to Law No. 32 of 1997 concerning Commodity Futures Trading, Minister of Trade Regulation No. 99 of 2018 concerning General Policies for the Implementation of Crypto Asset Futures Trading, and the Regulation of the Commodity Futures Trading Supervisory Agency. The Commodity Futures Trading Supervisory Agency (Bappebti) is tasked with overseeing crypto sellers and the crypto assets that can be traded in Indonesia.

The Indonesian government emphasizes regulations regarding the imposition of taxes on those conducting crypto transactions, whether as sellers or buyers of these crypto assets. This taxation applies when crypto transactions are carried out on commodity futures exchanges registered with Bappebti. The issue raised by the author arises due to the lack of regulations governing the taxation of crypto transactions on commodity futures exchanges not registered with Bappebti. However, these taxes are crucial for Indonesia to augment its wealth and enhance the well-being of the community. Based on the background problem outlined, the problem formulation identified in this research is: What is the legal status of the imposition of taxes on Bitcoin transactions on commodity futures exchanges?

## II. METHODS OF RESEARCH

The answer for this research can be found using through normative juridical research, which involves the use and collection of secondary data, with a focus on legal regulations (Muhaimin, 2020: 45). The objective of this legal research is to determine, analyze, and discover the legal status of taxing Bitcoin transactions on commodity futures exchanges using the normative legal research method as a solution to legal issues based on legal concerns in society (Peter Mahmud Marzuki, 2021: 83). The first set of secondary data collected comprises primary legal materials, namely legislation and jurisprudence related to the regulation and decisions concerning taxation and Bitcoin. After collecting the first set of secondary data, further information can be obtained from secondary legal materials, including theories, principles, doctrines, expert opinions related to individuals who can be considered taxpayers, and the legal consequences for businesses that fail to register as required. The data analyzed in connection with the issues at hand employs qualitative analysis techniques and draws conclusions deductively-inductively, meaning conclusions are derived from the general to the specific aspects related to the legal issues at hand (Suteki & Galang Taufani, 2018: 181). This qualitative analysis is conducted by examining the certainty of taxing Bitcoin transactions on commodity futures exchanges.

## III. RESULT AND DISCUSSION

### A. *An Observation on Taxation, Bitcoin, and Tax Subjects*

#### 1. Definition and Regulation of Value Added Tax (VAT)

Tax according to Law Number 28 of 2007 concerning the Third Amendment to Law Number 6 of 1983 concerning General Provisions and Procedures for Taxation, is a mandatory contribution to the state owed by individuals or entities, which is compulsory based on the law, without direct compensation, and used for the state's purposes to the maximum extent possible for the prosperity of the people.

According to the Kamus Besar Bahasa Indonesia (KBBI), tax is a compulsory levy, usually in the form of money, that must be paid by residents as a mandatory contribution to the state or government in relation to income, ownership, purchase prices of goods, and so on (Online Kamus Besar Bahasa Indonesia). In the book titled "Hukum Pajak" written by Adrian Sutedi in 2011, there are several definitions of tax presented by experts, including the following (Adrian Sutedi, 2011: 2-3).

a) Prof. Dr. P.J.A. Adriani



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Tax is a contribution from the community to the state (that can be enforced), owed by those obligated to pay it according to regulations (laws) without receiving direct compensation or benefit. This tax serves to finance general expenditures related to the state's duties, namely, the administration of government.

b) Prof. Dr. H. Rochmat Soemitro, S.H.

Tax is the transfer of wealth from the public to the state to finance routine expenditures along with its surplus, which is utilized for public saving, serving as the primary source to fund public investment.

c) Brock Horace R.

d) Tax is a transfer of resources from the private sector to the government, not due to legal violations but as an obligation carried out based on pre-established regulations, without direct and proportionate compensation, enabling the government to fulfill its duties in administering governance.

Based on various definitions provided by tax experts, generally, tax refers to a contribution collected by the community for the state treasury based on the law. Therefore, the government's collection of contributions can be enforced without the public receiving a direct perceived service in return.

The regulation regarding Value Added Tax (VAT) is found in the Republic of Indonesia Law Number 42 of 2009 concerning the Third Amendment to Law Number 8 of 1983 concerning Value Added Tax on Goods and Services and Sales Tax on Luxury Goods. According to Article 1 of that law, value-added tax is a levy imposed on the sale and purchase transactions of goods and services carried out by individual taxpayers or corporate taxpayers who have become Taxable Entrepreneurs (PKP) in the customs area (<https://www.pajak.go.id/id/jenis-pajak-pusat>).

### 2. Regulation and Definition of Bitcoin

The rapid development of information and communication technology must be carefully considered to provide maximum benefits for the economic growth of Indonesia. With the onset of digitalization in the economic sector, especially in business transactions, new trends emerge that change the habits of using paper and metal currency into digital-based currency. The existence of digital-based currency certainly facilitates and enhances the efficiency of transactions within society. Digital-based currency utilizes a highly complex and intricate cryptographic system, making it impossible for unauthorized individuals to transfer or replicate it. This type of currency is independent in nature, meaning that the production and distribution of digital currency are not controlled by any party globally, including governments or banks. One of the popular digital currencies worldwide is Bitcoin.

The emergence of Bitcoin has become a widely discussed topic. Bitcoin is a cryptocurrency that has been distributed massively and extensively. Users of Bitcoin are referred to as customers. Each customer can create their own account, commonly known as an address. A customer can send Bitcoin to another customer by conducting a transaction and recording it in the global log known as a blockchain. The blockchain is operated by entities called Bitcoin miners. These Bitcoin miners are the ones who will be rewarded for their efforts in the Bitcoin system. There is security assurance in Bitcoin transactions. The security obtained in Bitcoin transactions comes in the form of protection derived from encryption techniques that identify the legitimate owner of the address (Eyal et al., 2013).

On the 3<sup>rd</sup> January 2009, marks the beginning of the emergence of the Bitcoin currency pioneered by Satoshi Nakamoto (Dimaz Ankaa Wijaya, 2016: 79). Nakamoto accommodated approximately 109 million accounts. In March 2015, the Bitcoin trading index reached 200,000 Bitcoins in a single day, equivalent to around 50 million USD in market value. The total market value of all Bitcoins is estimated to be around 3.5 billion USD. The presence of Bitcoin has drawn the attention of economists to digital currency due to its potential to disrupt the current payment system and create potential issues for future currencies. This could occur if Bitcoin interacts with the conventional economic system and the real economy (Böhme et al., 2015). In line with these developments, the exchange rate of Bitcoin has become very high due to the increased demand for using Bitcoin as a global peer-to-peer network-based payment transaction tool commonly used by programmers (Ibnu Saefullah, 2018: 2).

Bitcoin is a peer-to-peer network-based currency designed to facilitate the exchange of Bitcoin among other users within the computer network. The advantages of using Bitcoin include ease, efficiency, and low costs. New users of Bitcoin need to have a virtual wallet. This virtual wallet encompasses three types: Soft virtual wallet, phone wallet, and web wallet (Tiara Dhana Danella, 2015: 8). The difference between these three types of virtual wallets lies in the storage location of Bitcoin. In Bitcoin, a web wallet allows users to access it from anywhere using the internet, similar to online banking. In a web wallet, users can also view the amount of Bitcoin balance stored in it. The function of a virtual wallet is similar to that of a conventional bank in general. However, in the event of a crime, it is not the responsibility of the bank or the government (Koeswanto, 2017). The distribution of Bitcoin uses a concept called the Half-Life rule, where the initial distribution will decrease by half after a certain period has elapsed. This is what causes the Bitcoin supply to become limited (Anonymous, 2018).



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There are two options to acquire Bitcoin, the first option being through the process of Bitcoin mining. A Bitcoin miner is an individual who operates a computer to perform calculations and discover blocks in the blockchain. After the miner verifies the blockchain, the next step is to offer a reward in the form of Bitcoin to the verified miner. This option is based on the theory popularized by Hal Finney and Nick Szabo to understand the accurate proofing system. With technological advancements, miners no longer operate general devices like computers, laptops, or tablets but instead use specialized tools known as ASIC (Application Specific Integrated Circuit).

ASIC or Application Specific Integrated Circuit, is a specialized electronic circuit designed to perform mathematical calculations within the Bitcoin system. A Bitcoin miner can acquire Bitcoin more efficiently and effectively due to the advanced functions of ASIC compared to general computer devices. Another way to acquire Bitcoin is through traditional means, namely by conducting transactions on websites that sell Bitcoin. Indonesia already has two main markets where you can transact with Bitcoin, namely Bitx.co/id and Bitcoin.co.id (Yohandi, 2017).

The regulation regarding the imposition of taxes on crypto assets in Indonesia is stipulated in Article 5, paragraphs (1) and (2) of the Regulation of the Minister of Finance of the Republic of Indonesia Number 68/PMK.03/2022 concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions. Crypto assets are digital currencies traded by physical traders of crypto assets in the physical crypto asset market. There are many types of crypto assets traded in the physical crypto asset market, one of which is Bitcoin. This information is included in the Annex of the Regulation of the Commodity Futures Trading Supervisory Board Number 4 of 2023 concerning Amendments to the Regulation of the Commodity Futures Trading Supervisory Board Number 11 of 2022 concerning the Determination of the List of Crypto Assets Traded in the Physical Crypto Asset Market.

### 3. Tax Subjects

The definition of a tax subject is regulated in Article 1 number (2) of the Republic of Indonesia Law Number 28 of 2007 concerning the Third Amendment to Law Number 6 of 1983 concerning General Provisions and Taxation Procedures. It refers to an individual or entity, including tax subject, tax withholders, and tax collectors, who have rights and obligations in taxation in accordance with the provisions of tax regulations..

The subjects of Value Added Tax (VAT) and Luxury Goods Sales Tax (LST) are individuals or entities engaging in transactions with objects subject to Value Added Tax and Luxury Goods Sales Tax, as stipulated in Article 4 and 5 of the Republic of Indonesia Law Number 42 of 2009 concerning the Third Amendment to Law Number 8 of 1983 regarding Value Added Tax on Goods and Services and Sales Tax on Luxury Goods. The imposition of value-added tax is regulated in Article 4 of this law, which states: "Value Added Tax is imposed on: a. the delivery of Taxable Goods within the Customs Area carried out by entrepreneurs; b. the import of Taxable Goods; c. the provision of Taxable Services within the Customs Area carried out by entrepreneurs; d. the utilization of Intangible Taxable Goods from outside the Customs Area within the Customs Area; e. the utilization of Taxable Services from outside the Customs Area within the Customs Area; f. the export of Tangible Taxable Goods by Taxable Entrepreneurs; g. the export of Intangible Taxable Goods by Taxable Entrepreneurs; and h. the export of Taxable Services by Taxable Entrepreneurs."

In Government Regulations, there are also provisions regarding the objects subject to value-added tax. The objects subject to value-added tax include those applicable to all deliveries of taxable goods implemented within the customs area by wholesale or retail traders in a business or occupation environment, and the delivery of types of services subject to value-added tax is regulated. Article 5 specifies that, in addition to the imposition of value-added tax, luxury goods sales tax is also levied on the delivery of luxury goods carried out by entrepreneurs producing luxury goods within the customs area in the course of their business or occupation and the import of luxury goods.

### ***B. Law Theory, Tax Collection Theory, and Taxation Legal Principles In The Imposition Of Tax On Bitcoin Transactions***

Legal theory is a term frequently used in the field of law to explain the foundational concepts studied in legal science, encompassing ideas and theoretical concepts aimed at supporting legal dogmatics. It is formulated to make law a fundamental aspect of human life across various periods and eras. Etymologically, legal theory originates from the term "Legal Theory" in English and "Rechtstheorie" in Dutch. As the field of legal science has evolved over time, legal scholars have used various terms, including legal philosophy, jurisprudence, and legal theory. Despite differences in these terms, legal scholars use them interchangeably to interpret legal theories. Although each term has distinct meanings upon closer examination, they all remain closely related to legal theory.

Legal theory serves as the foundation for positive law in addressing specific legal issues according to the needs of the community where the law holds jurisdiction. Legal theory is something abstract, value-free, and non-normative, unlike legal dogmatics, which is practical, concrete, and contains prescriptive and normative values. In line with this, the method of legal theory differs from legal science. Legal theory analyzes by dissecting, separating, peeling, discussing differences, and seeking the

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truth about what distinguishes the law from other norms. Looking at this explanation, legal theory can be considered fundamentally as theories or ideas and theoretical concepts within legal science. It can be said that the object of legal theory is legal science, encompassing everything about the law, unrestricted to the law applicable in a particular region and time (Isharyanto, 2016:13).

There are three conditions that must be met for something to be considered a legal theory, namely: (Uswatun Hasanah & Eny Suastuti, 2020: 3)

1. Addresses the problems under study;
2. Includes a specific method;
3. Contains a set of consistent statements (Realizing theory as a product of scientific activities).

Legal theory has an interdisciplinary character, meaning it views law from outside of law/other disciplines. Legal theory has three tasks, or can be called tri tasks, namely: (Uswatun Hasanah & Eny Suastuti, 2020: 3)

1. Legal doctrines/rechtsleer, which analyze various definitions related to law/judicial concepts;
2. The relationship between logic and law;
3. Methodology in theoretical and practical aspects.

Speaking of benefits is always associated with the utilitarianism theory popularized by Jeremy Bentham. Utility in the theory proposed by Jeremy Bentham is classified as an ethical theory that places behavior and actions that can be considered ethically good as actions that are useful and provide benefits, and bring profit, while actions considered not good only bring hardship and suffering. (Endang Pratiwi, 2022: 274). The essence of the legal theory/utilitarianism stream is based on every action taken by humans towards actions that lead to the greatest happiness and avoid or reduce suffering.

Policies and regulations are fundamental necessities between society and the government as an effort to regulate ethically sound actions and provide benefits deemed good for the well-being of the broader community, in line with the theory proposed by Jeremy Bentham regarding the utilitarianism of law. Consequently, taxes imposed on the public are expected to provide benefits, as the taxes managed by the government will be reinvested in the community in the form of public facilities that can enhance the standard of living and maximize happiness for the general public.

The imposition/levying of taxes is a lawful and legal matter in the eyes of the law. This is supported and based on theories that provide justifications for the state's right to collect taxes, namely: (Aini Hamdan, 1985).

1. Interest Theory: This theory focuses on the state's interest in national development. The larger the state's needs related to economic development, the larger the tax imposed on taxpayers. This theory prioritizes the common interest for society, where the community needs the state as the tax administrator;
2. Ability-to-Pay Theory: This theory requires everyone to pay taxes in accordance with their respective burdens or ability to pay;
3. Justification Theory of Tax Collection: This theory obliges every citizen to pay taxes to the state as a form of solidarity and the familial nature of Indonesian society in the context of national development. (Bustamar Ayza, 2017: 62)

As for the principles that justify the state's right to collect taxes, they are as follows: (Adrian Sutedi, 2011: 22-25)

### 1. Sources Principle

This principle depends on the source of income in a country. The state can collect taxes regardless of the taxpayer's residence if there is a source of income in that country. Based on the source principle, taxation will be imposed by the state on income received by individuals or entities. Taxation is carried out by the state when the income that will be taxed is obtained or received by individuals or entities whose source is within the respective country. Referring to this source principle, the basis for calculating tax collection is the object that originates from the territory of the respective country. An example of the application of the source principle in tax collection is if there is a foreign national employee working in Indonesia. According to the source principle, income earned by them in Indonesia will be subject to taxation by the Indonesian government.

### 2. Domicile Principle

The domicile principle, also known as the residence principle, implies that a country will levy taxes on the income of an individual or entity if, in the context of taxation, the person is a resident or has a domicile in that country, or if the entity is domiciled in that country. In this context, the source of income is not the primary concern. Any country that recognizes and practices this principle in its tax system will unify the domicile principle related to income subject to tax, whether it originates domestically or internationally. The domicile principle specifies that the imposition of tax depends on the residence or domicile of the taxpayer. The country where the taxpayer is domiciled has the right to levy taxes on all income earned, regardless of the source of that income.

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### 3. Juridical Principle

The juridical principle argues that the law should be the foundation for tax collection. Tax law must provide the necessary legal safeguards to uphold strong justice, both for the state and its citizens. The legal basis for the government to impose taxes lies in Article 23 paragraph (2) of the 1945 Constitution. This article asserts that all taxes levied for the needs of the state must be based on the law. In Indonesia, Article 23 paragraph (2) holds significant meaning as a determinant of the fate of the people. This provision emphasizes that the people, as a nation, will lead their lives, and their sources of funding to sustain their lives must be determined by the people themselves through their representatives in the People's Consultative Assembly. The people have the right to determine their own fate, including how they lead their lives. Therefore, when it comes to determining budgets that affect the people's right to determine their own fate, such as taxes and other matters, it must be regulated by law.

Tax policies regarding cryptocurrency transactions should not exceed the taxpayer's capacity according to the ability-to-pay theory to avoid hindering economic activities. The government, as the tax collector, must genuinely consider the economic impacts on society. This is necessary because it can increase state revenue through taxes, thus significantly contributing to national development by building public facilities. According to the philosophy of Pancasila, it embodies two principles: familial and mutual cooperation. Indonesian society practices mutual cooperation through taxation. Taxation is one of the means for building a just and prosperous society, and this serves as the justification for tax collection by the state.

### C. Legal Status Of Taxation On Bitcoin In Commodity Futures Exchanges

Attachment to the Regulation of the Commodity Futures Trading Regulatory Agency Number 4 of 2023 Regarding Amendments to the Regulation of the Commodity Futures Trading Regulatory Agency Number 11 of 2022 Concerning the Determination of the List of Crypto Assets Traded in the Physical Market of Crypto Assets contains a list of crypto assets traded in the physical market of crypto assets. The following is a table of the list of crypto assets traded in the physical market of crypto assets.

#### I. TABLE OF CRYPTO ASSETS TRADED IN THE PHYSICAL CRYPTO ASSET MARKET

NO	TYPE OF CRYPTO ASSETS	CODE
1	Ethereum	ETH
2	Klaytn	KLAY
3	Solona	SOL
4	Tezos	XTZ
5	Iota	MIOTA
6	USD Coin	USDC
7	Polkaot	DOT
8	The Sandbox	SAND
9	Bitcoin	BTC
10	Cosmos	ATOM
11	Ox Protocol	ZRX
12	Litecoin	LTC
13	Cardano	ADA
14	Chainlink	LINK
15	Uniswap	UNI
16	Stellar	XLM

Based on the above table, it can be concluded that Bitcoin is one of the crypto assets traded in the physical crypto asset market.

Referring to Article 5 paragraph (1) and (2) of the Regulation of the Minister of Finance of the Republic of Indonesia Number 68/PMK.03/2022 Concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions, it regulates the imposition and tariff of Value Added Tax (VAT) on crypto asset transactions. In the case of trading organizers through an electronic system, whether they are physical crypto asset traders or not, the Value Added Tax rate imposed on crypto asset transactions for trading organizers through an electronic system who are physical crypto asset traders is 1% (one percent) of the transaction value. Meanwhile, the Value Added Tax rate imposed on crypto asset transactions for trading organizers through an electronic system who are not physical crypto asset traders is 2% (two percent) of the transaction value.

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The definition of a physical crypto asset trader is found in Article 1 number (17) of the Regulation of the Minister of Finance of the Republic of Indonesia Number 68/PMK.03/2022 Concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions. It regulates the imposition and tariff of Value Added Tax (VAT) on crypto asset transactions. A physical crypto asset trader is defined as a party that has obtained approval from the authorized official in accordance with the provisions of the laws and regulations governing commodity futures trading, to conduct crypto asset transactions either on their own behalf and/or facilitate transactions for the sale or purchase of crypto assets.

The definition obtained in Article 1 number (17) of the Regulation of the Minister of Finance of the Republic of Indonesia Number 68/PMK.03/2022 Concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions, which regulates the imposition and tariff of Value Added Tax (VAT) on crypto asset transactions, can be concluded that the key difference between physical crypto asset traders and those who are not physical crypto asset traders lies in obtaining approval from the authorized official in accordance with the provisions of laws and regulations governing commodity futures trading. This approval is necessary to conduct crypto asset transactions either on their own behalf and/or to facilitate transactions for the sale or purchase of crypto assets.

### D. Consequences Of Bitcoin On Unregistered Cryptocurrencies With Bappepti

Consequences in the legal context that may occur to cryptocurrency exchanges that do not register with Bappepti include: (Dhimas Candra & Andrianto, 2022: 143)

1. Lack of protection for registered and verified member's personal data;
2. Absence of investor account security protection;
3. Lack of dispute resolution in crypto asset trading disputes; and
4. Lack of Bappepti supervision on crypto asset trading companies.

### E. Conclusion

Legal Status of Bitcoin Taxation in the Commodity Futures Exchange has been regulated by legislation, namely the Minister of Finance Regulation of the Republic of Indonesia Number 68/PMK.03/2022 Concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions, which regulates the imposition and rates of Value Added Tax (VAT) on crypto asset transactions. This regulation is in accordance with recognized legal theories and principles, ensuring compliance with the Utilitarianism theory proposed by Jeremy Bentham. Thus, it is legally binding and is expected to provide benefits considered good for the general welfare of society.

## ACKNOWLEDGMENT

Gratitude to the founders and co-founders of the faculty of law of , Universitas Atma Jaya Yogyakarta.

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## Correlation Between the Cognitive Aspect, Konative Attitude, and the Motivation Towards the Physical Literacy of the Students of Physical Education for Elementary School Study Program of Undergraduate Program



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**ABSTRACT:** This research aims to determine: (1) to describe the correlation between the cognitive aspects and the physical literacy of the students of Physical Education for Elementary School Study Program, (2) to describe the correlation between the conative attitudes and the physical literacy of the students of Physical Education for Elementary School Study Program, (3) to describe the correlation between the motivation and the physical literacy of the students of Physical Education for Elementary School Study Program, and (4) to describe the magnitude of the correlation of cognitive aspects, conative attitudes, and motivation towards the physical literacy of the students of Physical Education for Elementary School Study Program. This research used a descriptive quantitative method with a correlation approach. The correlational method was used to 1) measure the correlation between various variables, 2) predict the dependent variables from our knowledge of the independent variables, and 3) pave the way for creating experimental research designs. The research population was the students of Physical Education for Elementary School in the 2021 and 2022 undergraduate programs, a total of 268 students. The sampling technique used the Slovin formula with a significance level of 5% totaling 160 students. The data analysis technique used multiple regression test. The research instrument was a questionnaire. The results show that (1) the cognitive aspect variable concludes that the students of Physical Education for Elementary School Study Program Undergraduate Program are in the moderate category with a percentage of 57% (91 people) and there is a correlation between the cognitive aspect and physical literacy with a significance value of 0.044. (2) The conative attitude variable concludes that students of Physical Education for Elementary School Study Program Undergraduate Program are in the moderate category with a percentage of 37% (59 people) and there is a correlation between conative attitudes towards physical literacy with a significance value of 0.018. (3) The motivational variable conclude that students of Physical Education for Elementary School Study Program Undergraduate Program are in the moderate category with a percentage of 54% (86 people) and there is a correlation between motivation and physical literacy with a significance value of 0.046. (4) The physical literacy variable concludes that the physical literacy of students of Physical Education for Elementary School Study Program Undergraduate Program are in the moderate category with a percentage of 48% (77 people) and there is a correlation between cognitive aspects, conative attitudes, and motivation towards physical literacy with a significance value of 0.043.

**KEYWORDS:** cognitive, physical literacy, motivation, conative attitude.

### INTRODUCTION

In the preamble of the 1945 Constitution, it is explained that education is very important and has become the main goal of the State of Indonesia. This goal is contained in the objectives of national education, namely the development of the potential of students to become human beings who are faithful and devoted to God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. In the National Education System Law Number 20 of 2003, article 1 paragraph (1) states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves, society, nation and state.

Education is an effort to help the souls of students both physically and mentally, from their nature towards humane and better civilization. (Sujana, 2019). Education is a continuous and never ending process (*never ending proces*), so that it can produce sustainable quality, which is aimed at the realization of future human figures, and is rooted in the cultural values of the nation and



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Pancasila. Education must foster the nation's philosophical and cultural values as a whole and as a whole. Winoto (2020) argues that in the perspective of formal education, education is a process and a conscious effort to increase students' potential (academic, emotional, and spiritual) so that it can develop optimally.

Education has many scientific fields ranging from social science, politics, economics, religion, and even the universe which is in one unit of science. One of the branches of science related to physical and spiritual health is physical education, where physical education focuses on activities and games that support growth and development, especially from children to adults.

Sports education is also the same as other scientific branches, in which there are basic rules of scientific principles, formulas, and exact science in solving a problem related to human physical and psychological. Sports education also plays an important role in supporting the growth and development of children until they become adults.

Sports education is only one of the branches of science that is underestimated by most people, on the other hand there are still many branches of science that are less important to the general public. Whereas from all branches of science it is a human provision in navigating his life. Each branch of science will support us in conducting further studies after undergraduate education. Physical Education Sports and Health which is an integral part of overall education aims to develop aspects of physical fitness, movement skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, aspects of a healthy lifestyle and introduction to a clean environment through selected physical, sports and health activities that are planned systematically in order to achieve national education goals.

Based on the 2013 curriculum, the competency standards that must be achieved by students are affective, cognitive and psychomotor. In assessing learning in the field and in the classroom, teachers must observe and assess students based on these three aspects. Therefore, students must really understand and master the aspects of assessment and assessment procedures, especially in assessing learning outcomes.

Physical education has the same goal as the overall goal of education, because physical education is an integrated part of education in general. The goals of physical education are classified into three domains psychomotor, cognitive, and affective (Buck, Jable, & Floyd, 2004). So physical education is part of education to develop the ability of students through movement so that they can achieve health and the expected educational goals which include knowledge, skills, and attitudes. So it can be understood that the purpose of physical education is implicitly inseparable from the four domains of assessment, namely the cognitive domain, the affective domain, the psychomotor domain and physical activities. The domain of physical activity in physical education is closely related to the psychomotor domain so it can be understood that physical activity is directly related to the psychomotor domain. These domains are an integrated unit that has a relationship in the individual's identity where in an effort to develop one of the domains will have an impact on the other domains.

The cognitive domain is an area related to intellectual or logical aspects that can be measured by thought or reason, in physical education the cognitive domain is related to knowledge about PE, understanding the principles and mechanisms of motion, match rules and sports history. The affective domain is an area related to emotional aspects such as feelings, interests, attitudes, adherence to morals and so on, in physical education the affective domain is closely related to social and personality behavior such as: effort, attitude and spotivity.

The psychomotor domain is an area related to aspects of skill that involve the function of the nervous and muscular system (*neuronmuscular system*) and psychological functions, in physical education the psychomotor domain includes achievements in skills, playing ability and physical fitness of students. However, the reality of the current physical education learning process in schools is that most of what is measured is more dominant in psychomotor abilities, while only a few cognitive and affective aspects are given during the learning process. Thinking about physical education that emphasizes the physical aspect is still embedded in the mindset of physical education teachers. Specifically, physical education is also expected to teach students to be able to think scientifically and systematically according to the demands of the 21st century era (Mashud, 2015). Thus, to achieve the goals of physical education, learning in these subjects needs to be considered and should not be underestimated.

Learning is an activity of interaction between learners and their environment (students, teachers, or subject matter) someone is considered to have learned if he can show changes in himself in the form of behavior. Physical activity is an important part of human life. Physical activity can be done by doing sports, because it has been proven to nourish the body. Exercising will improve blood circulation which is useful for heart health and can improve concentration. People who understand the concept of physical literacy are able to perform several activities in their lives confidently, competently, effectively, efficiently and optimally.

Motivation to learn is a psychological factor that is a non-intellectual factor. A student who has a high enough intelligence can fail due to lack of motivation in learning. Motivation has an important role in the teaching and learning process for both lecturers and students. For lecturers, knowing the motivation to learn from students is very necessary in order to maintain and increase the enthusiasm for student learning. For students, learning motivation can foster a spirit of learning so that students are



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encouraged to carry out learning actions. Students do learning activities happily because they are motivated. Someone will learn if there is a push from within and will like the lesson if it is in accordance with their interests.

Hearing the term literacy, many people may associate the term with reading and writing activities (Nugraha & Octavianah, 2020). As time goes by and the times develop these literacy words are not only concerned with reading and writing Physical literacy by expanding the view of UNESCO above as: the ability to identify, understand, interpret, create, respond effectively, and communicate using the dimensions of human bodies in a wide range of situations and contexts. Physical literacy is the foundation for an individual that is used in various activities of daily life and in efforts to achieve performance excellence.

The problems that arise in PJSD study program students are very diverse, including the cognitive attitudes of students who are still lacking. One of them is the low interest in reading and looking for various references to support the achievement of effective learning. The next problem is the conative attitude of students, namely daily habits or behaviors that should reflect that PE students have the habit of being able to carry out activities oriented towards physical activity effectively and efficiently. Furthermore, the third problem is the motivation of PJSD students in movement activities. There are still many PJSD students who do not do additional training or independent study after getting material, one of which is movement activity.

After knowing the above problems, it is hoped that the cognitive abilities, conative attitudes and motivation of students in doing physical activity will be able to increase the level of physical literacy of undergraduate PJSD study program students.

PJSD study program students as prospective teachers should learn to be a good teacher, namely a teacher who can be a role model for students, others, and themselves. Not only that, prospective teachers should also have the knowledge, *attitude*, and skills that support their profession as teachers. In addition, students must have standardized competency abilities and be able to demonstrate their quality as professional teachers, because competence is a mastery of the work ability of each individual which includes aspects of knowledge, skills and work attitudes in accordance with established standards. teacher professionalism is a necessity that cannot be delayed anymore along with the increasing competition that is getting tighter. It requires people who are truly experts in their fields, according to their abilities so that everyone can play a maximum role. The task of being a professional teacher is not easy. Everyone can be a teacher, but today's teachers must have competency standards that can make the world of education more qualified and qualified. Professional teachers are teachers who have the required competencies to be able to carry out educational and teaching tasks.

Ideally students as prospective physical education teachers should have sufficient basic movement experience and in accordance with the stage of physical growth and development for students. Providing enough experience and provision of motion to students in order to have good mastery of motion. One of the efforts to provide motion experience for students is to introduce motion through the concept of *physical literacy*. *Physical literacy* provides insight, experience, competence, motivation to children so that children have enough "treasury" of motion as a provision for a lifelong active life. In other words, *physical literacy* aims to provide movement options in order to have a large "vocabulary" of movement.

Students as the young generation are the determinants of Indonesia's future. The level of literacy determines the quality of human resources. As we know, the quality of human resources is the main requirement for the progress of a nation. Physical literacy among students is expected to be able to add insight into knowledge about health by reading, writing and listening to information. The knowledge that students have about physical literacy can enrich the repertoire of student knowledge both about movement, games, or various other sports can increase the development of reasoning power to form certain knowledge. Students' skills in interpreting or analyzing motion patterns, good at positioning themselves when playing sports, good at recognizing space and time, are characteristics of skills and intelligence in developing reasoning power as a result of physical literacy. From the explanation above, physical literacy can be said to be very beneficial for students in the future. Because with them understanding the meaning of physical literacy, it will improve the competency standards that must be achieved as educators, namely affective, cognitive and psychomotor. As students are also expected to be able to identify, understand, interpret, create, respond effectively, and communicate so that they can improve the standards of competence that must be achieved as educators and the standards of competence that must be achieved by students. This research investigates how cognitive aspects and conative attitudes play a role in the physical literacy of students. On the basis of these problems, this study raises the title Correlation of Cognitive Aspects, Conative Attitudes and Motivation Towards Physical Literacy of Elementary School Physical Education Study Program Undergraduate Students.

### METHODS

In this study, the authors used a quantitative descriptive method with a correlation approach. Quantitative methods are referred to as positivistic methods because they are based on the philosophy of *positivism*. This method is also called the *scientific* method because it fulfils scientific principles, namely concrete / empirical, objective, measurable, rational and systematic. (Sugiyono,

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2013). The place and time of this research was carried out at the Faculty of Sport and Health Sciences, Yogyakarta State University while the research time was carried out in March - June 2023. In this study, the population taken was Elementary School Physical Education students in the 2021 and 2022 undergraduate programmes, totalling 268 students. In this study, the authors used a quantitative descriptive method with a correlation approach. Quantitative methods are referred to as positivistic methods because they are based on the philosophy of *positivism*. This method is also called the *scientific* method because it fulfils scientific principles, namely concrete / empirical, objective, measurable, rational and systematic. (Sugiyono, 2013). The instrument used in this research is a questionnaire. The questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to answer. The questionnaire is an efficient data collection technique when the researcher knows exactly the variables to be measured and knows what to expect from the respondent. The questions compiled consist of two item components, namely positive questions (*favourable*) and negative questions (*unfavourable*).

### FINDINGS

The results showed that out of 160 respondents on the cognitive aspect variable had a maximum score of 71, minimum score of 24, average 56.37, median 55, mode 54 and standard deviation 6.345.

Meanwhile, the determination of the frequency distribution of cognitive aspects can be seen in the following table:

No.	Interval	Category	Frequency	Percentage
1	> 66	Very High	7	4%
2	61 - 66	High	30	19%
3	54 - 60	Medium	91	57%
4	48 - 53	Low	23	14%
5	< 47	Very Low	9	6%
Total			160	100%

Based on the table above regarding the frequency distribution of the relationship between cognitive aspects and physical literacy in undergraduate PJSD study program students, it is concluded that the cognitive aspects of undergraduate PJSD study program students are in the moderate category with a percentage of 57% (91 people). The results showed that of the 160 respondents the conative attitude variable had a maximum score of 64, a minimum score of 16, an average of 51.01, a median of 50, a mode of 48 and a standard deviation of 5.835.

Meanwhile, the determination of the frequency distribution of conative attitudes can be seen in the following table:

No.	Interval	Category	Frequency	Percentage
1	> 60	Very High	8	5%
2	55 - 60	High	33	21%
3	49 - 54	Medium	59	37%
4	43 - 48	Low	53	33%
5	< 43	Very Low	7	4%
Total			160	100%

Based on the table above regarding the frequency distribution of the relationship between conative attitudes towards physical literacy in undergraduate PJSD study program students, it can be concluded that cognitive attitudes in undergraduate PJSD study program students are in the moderate category with a percentage of 37% (59 people).

The results showed that of the 160 respondents on the motivation variable had a maximum score of 120, a minimum score of 30, an average of 95.26, a median of 93, a mode of 90 and a standard deviation of 12. Meanwhile, the determination of the frequency distribution of motivation variables can be seen in the following table:

Motivation Frequency Distribution Table

No.	Interval	Category	Frequency	Percentage
1	> 113	Very High	9	6%
2	102 - 113	High	34	21%
3	90 - 101	Medium	86	54%
4	78 - 89	Low	25	16%

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5	< 77	Very Low	6	4%
Total			160	100%

Based on the table above regarding the frequency distribution of the relationship between motivation and physical literacy in undergraduate PJSD study program students, it can be concluded that motivation in undergraduate PJSD study program students is in the moderate category with a percentage of 54% (86 people).

The results showed that of the 160 respondents on the physical literacy variable had a maximum score of 56, minimum score of 14, average 41.03, median 40, mode 42 and standard deviation 5.405. Meanwhile, the determination of the frequency distribution of physical literacy variables can be seen in the following table:

Physical Literacy Frequency Distribution Table

No.	Interval	Category	Frequency	Percentage
1	> 49	Very High	15	9%
2	45 - 49	High	11	7%
3	39 - 44	Medium	77	48%
4	33 - 38	Low	55	34%
5	< 33	Very Low	2	1%
Total			160	100%

Based on the table above regarding the frequency distribution of physical literacy in undergraduate PJSD study program students, it can be concluded that the physical literacy variable in undergraduate PJSD study program students is in the moderate category with a percentage of 48% (77 people).

### Classical Assumption Test

#### 1. Normality Test

The data normality test is used to determine whether the samples that have been taken come from the same population (normally distributed data population). The results of the data normality test using the *Kolmogorov-Smirnov Test* (K-S test). The results of the normality test data calculation can be seen in the following table:

Table of Data Normality Test Results

#### One-Sample Kolmogorov-Smirnov Test

		Unstandardised Residual
N		160
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	5.36996971
Most Extreme Differences	Absolute	.075
	Positive	.075
	Negative	-.021
Test Statistic		.075
Asymp. Sig. (2-tailed)		.073 <sup>c</sup>

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the table above, it can be seen that the data normality test carried out statistically using the *Kolmogorov-Smirnov* test can be concluded that all existing data are normally distributed. This is evidenced by the Asymp value obtained is greater than the value of the significant level, or  $p > 0.05$  with a value of 0.073. Based on this, the next analysis test can be carried out.

#### 2. Linearity Test

The linearity test aims to determine whether there is a linear relationship between the independent variable (X) and the dependent variable (Y). Both variables (independent variable and dependent variable) are declared linear if f count is greater than

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f table and the significance value (p) is less than 0.05. The linearity test used in this study is the F test using the help of SPSS 16.00 for Windows. The results can be seen in the following table:

**ANOVA Table**

		Sum of Squares	df	Mean Square	F	Sig.
X1*Y	Between Groups (Combined)	886.349	21	42.207	1.056	.003
	Linearity	.452	1	.452	.011	.915
	Deviation from Linearity	885.896	20	44.295	1.108	.348
	Within Groups	5514.895	138	39.963		
	Total	6401.244	159			
X2 * Y	Between Groups (Combined)	1614.455	21	76.879	2.792	.000
	Linearity	66.062	1	66.062	2.399	.124
	Deviation from Linearity	1548.393	20	77.420	2.812	.000
	Within Groups	3799.520	138	27.533		
	Total	5413.975	159			
X3*Y	Between Groups (Combined)	1131.728	21	53.892	.342	.047
	Linearity	16.130	1	16.130	.102	.750
	Deviation from Linearity	1115.598	20	55.780	.354	.045
	Within Groups	21764.766	138	157.716		
	Total	22896.494	159			

Based on the table above, it is known that the calculated f value of each variable relationship is greater than f table and the significance value (p) of each variable relationship is smaller than 0.05, so it can be concluded that the relationship between all types of independent variables and the dependent variable is linear.

### 3. Multicollinearity Test

Multicollinearity test is a test that aims to find out in a regression model if there is a perfect or high correlation between independent variables (Susila & Suyanto, 2015).

**Coefficients<sup>a</sup>**

Model		Unstandardised Coefficients		Standardised Coefficients Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	34.609	6.962		4.971	.000		
	Cognitive Aspects	.001	.069	.066	.020	.044	.958	1.043
	Conative Attitude	.102	.074	.110	1.387	.018	.998	1.002
	Motivation	.012	.037	.026	.324	.046	.960	1.042

a. Dependent Variable: Physical Literacy

Based on the tolerance and VIF values owned by each independent variable above, it can be concluded that the regression model above does not occur multicollinearity so that it can be continued for hypothesis testing.

## DISCUSSION

Physical literacy in its role has elements that can make someone do physical activity economically and calmly. The following elements of physical literacy according to *The International Physical Literacy Association* (2014) are as follows:

### 1. Motivation and Confidence (Affective)

Motivation and confidence refer to an individual's enthusiasm for, enjoyment of, and confidence in adopting physical activity as an integral part of life.

### 2. Physical Competence (Physical)

Physical competence refers to an individual's ability to develop movement skills and patterns, and the capacity to experience a range of movement intensities and durations. Enhanced physical competence enables an individual to participate in a variety of physical activities and settings.

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### **3. Knowledge and Understanding (Cognitive)**

Knowledge and understanding includes the ability to identify and express important qualities that influence movement, understand the health benefits of an active lifestyle, and appreciate safety features appropriate to physical activity in a variety of settings and physical environments.

### **4. Engagement in Physical Activity for Life (Behaviour)**

Engagement in lifelong physical activity refers to individuals taking personal responsibility for physical literacy by freely choosing to be active on a regular basis. It involves prioritising and maintaining engagement in a variety of personally meaningful and challenging activities, as an integral part of one's lifestyle.

Physical literacy can be described as the motivation, physical competence confidence, knowledge and understanding to value and take responsibility for engaging in lifelong physical activity. Cognitive ability is one of the abilities possessed by each individual. Cognitive abilities will relate to development in exploring, developing, finding problems and finding solutions to problems that occur.

Physical literacy is very important for students. Good physical literacy will make students have extensive knowledge in the field of health ranging from healthy living behaviour, knowing various kinds of diseases and their symptoms, and can make students more aware of personal health so that they can do certain things to prevent contracting a certain disease. The knowledge that students have about physical literacy can enrich the repertoire of student knowledge both about motion, games, or various other sports can increase the development of reasoning power to form certain knowledge. Students' skills in interpreting or analysing patterns of motion, good at positioning themselves when playing sports, good at recognising space and time, are characteristics of skills and intelligence in developing reasoning power as a result of physical literacy.

Knowledge and understanding includes the ability to identify and express important qualities that influence movement, understand the health benefits and active lifestyle, and appreciate safety features appropriate to physical activity in a variety of settings and physical environments. Knowledge and understanding are the most important things in doing physical activity. A person must know and understand about their physical activity because knowledge will provide a lot of information to a person. The knowledge and understanding gained when young will be useful when old, with extensive knowledge will make it easier for someone to get along with various groups.

Physical literacy can be described as a condition characterised by the motivation to utilise movement potential to contribute significantly to quality of life. Physically literate individuals will move calmly, economically and confidently in a variety of physically challenging situations. Physically literate individuals will be responsive in 'reading' all aspects of the physical environment, anticipating movement needs or possibilities and responding with intelligence and imagination appropriately. In addition physically literate individuals will have the ability to identify qualities that correlate with the effectiveness of their own movement performance, and will have an understanding of the principles of embodied health in relation to basic aspects such as exercise, sleep and nutrition.

A student who has a high enough intelligence can fail due to lack of motivation in learning. Motivation plays an important role in the teaching and learning process for both lecturers and students. For lecturers, knowing the motivation to learn from students is needed to maintain and improve students' enthusiasm for learning. For students, learning motivation can foster a spirit of learning so that students are encouraged to carry out learning actions. Students do learning activities happily because they are motivated. Someone will learn if there is a push from within and will like the lesson if it is in accordance with his interests.

Exercise motivation will make the person an active individual, able to socialise well, always maintain a healthy body and will prevent depression. Exercise motivation provides physiological, psychomotor and social benefits. Socially, exercise can be used as a socialisation method through interaction and communication with other people or the surrounding environment. Physiologically, exercise can make a vehicle for empowering the ability of physiological functions such as improving health, fitness, and improving the quality of physical condition components such as heart and lung work, agility, and strength. Psychologically, exercise can improve mood, reduce the risk of dementia, and prevent depression. Socially, exercise can reduce dependence on others, make more friends, and increase productivity. It is undeniable that the motivation that has been instilled from childhood will have a big impact when entering old age, there are still many people who are old with their limitations still actively exercising and also participating in competitions. This high motivation has led some people to succeed in their old age.

## **CONCLUSION**

Based on the results of the research that has been carried out, it can be concluded that:

1. There is a relationship between cognitive aspects and physical literacy in undergraduate PJSJ study programme students with a significance value of 0.044.

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2. There is a relationship between conative attitudes and physical literacy in undergraduate PJSD study programme students with a significance value of 0.018.
3. There is a relationship between motivation and physical literacy in undergraduate PJSD study programme students with a significance value of 0.046.
4. There is a relationship between cognitive aspects, conative attitudes, and motivation towards physical literacy in undergraduate PJSD study programme students with a significance value of 0.043.

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## Impact of Interventions Structured as a Tertiary Care Hospital to Reinforce Initiation of Breastfeeding



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**ABSTRACT :** The early initiation of breastfeeding in neonates creates a holistic neonatal care and reduces neonatal mortality rates. The present study is aimed at analysing there rates in a tertiary care hospital and the impact structured programs can have on the (EIBF) Early Initiation of Breastfeeding rates.

**KEYWORDS:** breastfeeding, initiation of breastfeeding.

### BACKGROUND

[1] UNICEF and WHO recommend exclusive breastfeeding for the first six months of life, starting within an hour of birth. [2]This “Golden Hour” includes elements like skin-to-skin contact for at least an hour, the early initiation of breastfeeding. [3] (EIBF) Early initiation of breastfeeding contributes directly to reduce neonatal morbidity and mortality.

[4] Colostrum is the first milk that is very important for new-borns in protecting infections. Since the first milk is rich in immunoglobulin G, colostrum has a significant role in disease resistance. Many articles reveal that bacterial, viral, fungal and protozoal infections of the new-born baby can be reduced by feeding colostrum. According to different studies, children who didn't feed colostrum more likely develop many infections, stunting, underweight and wasting.

[5] Production of prolactin and oxytocin during breastfeeding is associated with lower levels of maternal stress and enhanced bonding. Furthermore, early cessation of breastfeeding or not breastfeeding at all has been linked to an increased risk of maternal postpartum depression

[3] According to the 2015-2016 Indian National Family Health Survey, only 42.9 % of the total number of new-borns in Maharashtra had EIBF.

A study done at Super speciality hospital (now, Super Speciality Hospital) during world breastfeeding week in the same year, concluded that the rate of EIBF at the institute was 17%. Factors like lack of maternal awareness, less awareness & coordination amongst doctors & staff were the reasons for the staggering low values. Therefore, in the ambition to deliver paramount patient care the clinicians & administration of the institute undertook a breastfeeding program that included staff training, generation of breastfeeding policy and antenatal and post-delivery counselling of parents.

### BREASTFEEDING PROGRAM

The program initiated in 2016, involved a collaboartive effort from the administration, the obstetric team and the breastfeeding consultant to set up a structure for the program. It included the following:

- Creating awareness through seminars, trainings and campaigns especially during world breastfeeding week.
- Recommendations by obstetricians for antenatal counselling sessions for expecting parents.
- Quarterly training sessions for nurses, residents and support staff in wards and labour room, augmented by practical skill demonstration sessions for analysis and improvisation.
- Breastfeeding policies were deployed in labour rooms and wards.
- Post-natal counselling by lactation consultant to explain benefits of early breastfeeding and assistance if required.
- Increasing availability of breastpumps and checking for their proper sterilization.
- Yearly audits to monitor progress.



# Impact of Interventions Structured as a Tertiary Care Hospital to Reinforce Initiation of Breastfeeding

## INTRODUCTION

A prospective study done at Super Speciality hospital, Mumbai, Maharashtra, India from August 2021- December 2021. The aim of the study was to analyse the EIBF rates in the hospital and evaluate the outcome of the breastfeeding program, 5 years from its initiation. A total of 72 births were tracked in five months.

## MATERIALS AND METHOD

The following methods were applied: -

- The MIS (Management Information System) was used to record all the deliveries during the time period, including both normal and LSCS deliveries. The exclusion criteria were Covid-19 positive mothers as the neonate had to be separated from the mother to prevent transmission.
- Parameters were determined to assess the viability of the program.

### Assessment parameters

- Breastfeeding initiation in first one hour after birth.
  - Support received by mothers for initiation
  - Post-delivery counselling
  - Reasons to offer formula feed during their hospital stay.
  - Skills of support staff.
  - Availability of breast pumps.
  - Sterilization
- A daily report was obtained from each ward and labour room.
  - The nursing staff and residents were interviewed and findings were noted.
  - Practical skills of support staff were examined and short-comings documented.
  - A database was created with the above collected information and a prescriptive analysis was done.

## RESULTS

As per the study, all 72 neonates (100%) [Fig.1] received breastfeeding within 1 hr of birth. However, the duration of baby's suckling time was different in each case. Amongst these, 51(70.83%) [Fig.2.a] new-borns had to be given top feed due to multiple factors like pain, fatigue and insufficient sleep of mother, family's request specially pertaining to traditions and culture, medically advised, retracted or inverted nipples, lack of motivation and improper guidance from the support staff. On regular postnatal counselling from dedicated staff, 94.12% [Fig.2.b] of these mothers returned to exclusive breastfeeding within a span of 2-3 days.

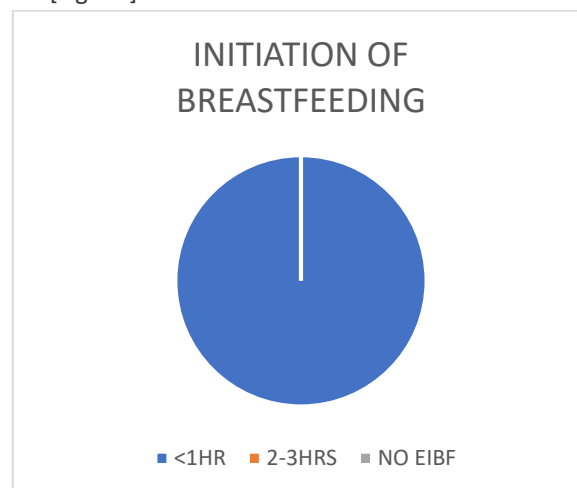


FIG. 1. TIME TAKEN TO INITIATE BREASTFEEDING IN NEONATES

## Impact of Interventions Structured as a Tertiary Care Hospital to Reinforce Initiation of Breastfeeding

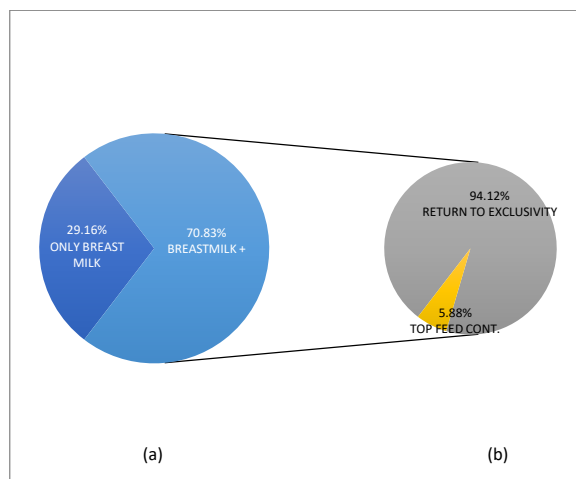


FIG. 2.a. TYPES OF FEED RECEIVED BY NEONATES, 2.b. TYPES OF FEED RECEIVED BY NEONATES RECEIVING BOTH BREASTMILK AND TOP FEED IN 2-3DAYS

### Comparison with prior study

A similar study was conducted in 2019 by the same institute. According to the data, the EIBF in the year was 71% which has significantly increased in the recent year. Therefore, the effectivity of the breastfeeding program from its initiation to as of now December, 2021 is as follows (Fig.3):

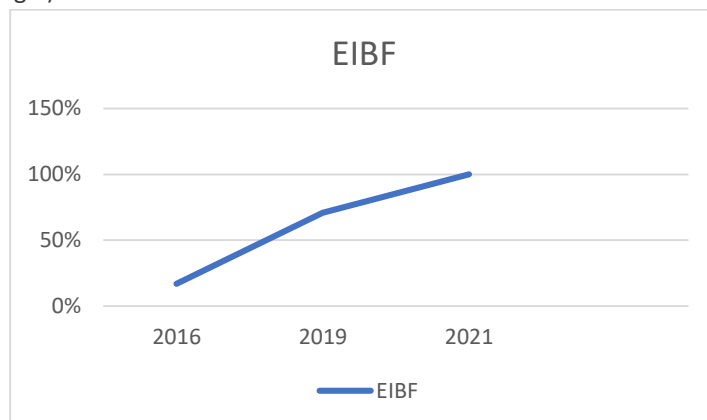


FIG. 3. RATES OF EIBF FROM THE INITIATION OF PROGRAM TO NOW.

### CONCLUSION

The breastfeeding program started by the above mentioned hospital has seen a significant success. Impact on the EIBF rates have been exponential starting from 17% to 100% in a span of 5 years. Aspects contributing to the success of the breastfeeding program has to be the constant counselling and awareness created amongst parents in antenatal and postnatal periods. Along with that, the training sessions to equip the support staff, encouraged and assisted new mothers to be able to have an easy breastfeeding experience and in turn its maintenance. Even with the positive development seen with the implementation of the program, there is still scope for improvisation in the future.

### RECOMMENDATIONS

[6] Breastfeeding is one of the most cost effective interventions which addresses both survive and thrive agenda of child health. Studies have highlighted how breastfeeding, if universalised, could prevent disease and deaths in Perinatal Period. To ensure that there is conducting environment for all mothers to practice breastfeeding at home outside home & workplace, Mother's Absolute Affection programme, an initiative of Govt of India provides opportunity to build capacity of doctors, paramedical staff and community health workers to aid breastfeeding.

- Regular soft skills training needed for nurses and support staff in each ward along with other skills training.
- All resident doctors posted in pediatric and obstetrics should be sensitised about breastfeeding policy. To have a written infant feeding policy that is routinely communicated to staff and parents.
- Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.

## Impact of Interventions Structured as a Tertiary Care Hospital to Reinforce Initiation of Breastfeeding

- Establish digital ongoing data-management systems.
- Co-ordinate discharge of mother and infant to timely access to ongoing support and care.
- Availability of efficient breast-pumps in each ward and regular maintenance of the same.
- Regularly conduct antenatal breastfeeding counselling for expecting couples registered with the hospital as well as engagement with corporates to promote breastfeeding, especially during World Breastfeeding Week.

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## The Role of the Supervisory Board of the Indonesian Corruption Eradication Commission as the Watcher of the Watchers: Encouraging or Inhibiting the KPK's Work?



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**ABSTRACT:** This research examines the role and complex relationship between the Corruption Eradication Commission (KPK) and its Supervisory Board, with a focus on the Supervisory Board's function as a supervisor of accountability and integrity. The KPK Supervisory Board, which is known for its vigorous anti-corruption initiatives, has institutional control over the organization. This study examines how this supervision impacts the effectiveness of the Corruption Eradication Committee and considers whether the Supervisory Board supports efforts to eradicate corruption or is actually an obstacle to efforts to eradicate corruption. The history of the development of the KPK, the formation and duties of the Supervisory Board, as well as the legislative structure that regulates its affairs, are all included in the examination. In addition, this research also evaluates specific cases where the Supervisory Board's actions influenced the direction of KPK investigations and activities. This research takes a balanced approach, respecting the value of accountability systems but also considering any weaknesses resulting from overly burdensome supervision. The role of the Supervisory Board in preventing abuse of power, harmony between autonomy and accountability, and the impact of the Supervisory Board's decisions on the effectiveness and morale of the Corruption Eradication Commission are some of the main themes raised. Through critical analysis of these elements, this research adds a deeper understanding of the complex interactions between the Corruption Eradication Commission and its Supervisory Board and sheds light on the broader discussion in Indonesia regarding institutional checks and balances and anti-corruption initiatives.

**KEYWORDS:** Supervisory Board, Corruption Eradication Commission, Corruption, Watcher of the watcher

### I. INTRODUCTION

The Corruption Eradication Commission (KPK) is a public body entrusted to the executive branch, to carry out its functions and authority, namely preventing and eradicating corruption, independently and not influenced by other powers. The functions and authority of the Corruption Eradication Commission are clearly contained in the provisions of Law Number 19 of 2019 concerning the Second Amendment to Law Number 30 of 2002 concerning the Corruption Eradication Commission. Article 6 of Law Number 19 of 2019 emphasizes that the KPK in carrying out its functions and authority must be based on legal certainty, openness, process accountability, public interest, proportionality and respect for human rights. The Corruption Eradication Commission is responsible to the general public and provides its reports in a transparent and scaled manner to the President, the House of Representatives and the Supreme Audit Agency. Article 6 of Law Number 19 of 2019 concerning the Corruption Eradication Commission clearly states that the Corruption Eradication Commission's duties include:

- a. preventive measures so that Corruption Crimes do not occur;
- b. coordination with agencies authorized to carry out the Eradication of Corruption Crimes and agencies tasked with implementing public services;
- c. monitor the administration of state government;
- d. supervision of agencies authorized to carry out the Eradication of Corruption Crimes;
- e. inquiry, investigation and prosecution of Corruption Crimes; And
- f. actions to implement the judge's determination and court decisions that have obtained a judge's determination and court decisions that have obtained permanent legal force.

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Regarding carrying out its duties and authority, the Corruption Eradication Commission is assisted by the Supervisory Board. The Supervisory Board is part of the KPK institution which was formed to ensure compliance with the principles contained in Article 5 of the law. Supervision activities carried out by the Supervisory Board include monitoring the implementation of the KPK's duties and authority, evaluating the performance of the KPK leadership, as well as examining and prosecuting witnesses for violations of the code of ethics for KPK leaders and employees. The Supervisory Board of the Corruption Eradication Commission was formed and carries out its duties in accordance with Article 37B of Law Number 19 of 2019, namely : supervise the implementation of the duties and authority of the Corruption Eradication Commission; giving permission or not giving permission for wiretapping, search and/or confiscation; prepare and establish a code of ethics for the Leaders and Employees of the Corruption Eradication Commission; receive and follow up on reports from the public regarding alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission or violations of the provisions of this Law; holding a hearing to examine alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission; and evaluate the performance of the Corruption Eradication Commission Leadership and Employees periodically 1 (one) time in 1 (one) year.

The presence of the Supervisory Board seems to clearly mean that the Corruption Eradication Committee (KPK) no longer exists as an independent state institution but rather directly receives intervention from other parties, in this case the Supervisory Board, although in this Law it is also explained in relation to the status or position of the Supervisory Board which is directly institutions are also included in one unit with the Corruption Eradication Commission. The Corruption Eradication Commission in carrying out its duties and authority to eradicate criminal acts of corruption must obtain permission from the KPK Supervisory Board. This makes it difficult for the Corruption Eradication Commission to carry out its functions and authority as an independent institution. Article 37B of Law Number 19 of 2019 clearly regulates the duties of the Supervisory Board. Furthermore, Article 37B letter b is one of the articles that stands out and brings out many advantages and disadvantages for various groups of society.

Provisions regarding granting authority and refusing to grant authority to the Corruption Eradication Commission (KPK) regarding wiretapping, searches and/or confiscations indicate that the Corruption Eradication Commission's independent and non-interventionist nature has been revoked. This can certainly hinder the work of the Corruption Eradication Commission (KPK) in every process of eradicating corruption in Indonesia. "The presence of the KPK Control Body seems to be a new opportunity for government officials to commit criminal crimes of corruption, because to carry out their functions and authority, they must first have permission from the KPK Supervisory Body".<sup>1</sup>

The existence of the KPK Supervisory Board with its duties and authorities as regulated in Article 37B of the KPK Law is considered to be one of the controversial provisions, because the supervisory board was formed whose duties and authorities are stated in that Article. Article 37B of the Corruption Eradication Committee Law weakens and hampers the independence of the Corruption Eradication Commission. The presence of the Supervisory Board has caused many losses and attracted a lot of criticism and speculation from various groups such as academics and practitioners. These issues need to be taken into consideration by the judicial authorities in carrying out their judicial functions. The implementation and application of the existence of the Corruption Eradication Committee (KPK) is actually very useful in strengthening the function of the Corruption Eradication Commission, but if we look at it in more detail, the presence of this supervisory board seems like direct intervention in the KPK's status as an independent institution. The presence of the Supervisory Board provides an understanding that the possibility of hampering the KPK's performance could occur. Therefore, the formulation of the problem in this research is; Can the role of the Supervisory Board of the Indonesian Corruption Eradication Commission support the aim of establishing the Corruption Eradication Commission as an institution to eradicate criminal acts of corruption? And what is the legal policy for the supervisory board of the Indonesian Corruption Eradication Commission to make it effective for the Corruption Eradication Commission? This research aims to examine further matters related to the existence of the Supervisory Board, as well as to find out how the legal policy for the Indonesian Corruption Eradication Commission Supervisory Board is effective in the KPK Institution.

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<sup>1</sup> E. Fernando M. Manullang, Misinterpretation of Gustav Radbruch's Ideas regarding the Philosophical Doctrine of Validity in the Formation of Laws, Legal Journal Vol. 5 No. 2 (2022)

# The Role of the Supervisory Board of the Indonesian Corruption Eradication Commission as the Watcher of the Watchers: Encouraging or Inhibiting the KPK's Work?

## II. RESEARCH PROBLEM

Based on the background of the problem that has been discussed, the problem formulation taken in this research is:

1. Can the role of the Supervisory Board of the Indonesian Corruption Eradication Commission support the aim of establishing the Corruption Eradication Commission as an institution to eradicate criminal acts of corruption?
2. What is the legal policy for the Supervisory Board of the Indonesian Corruption Eradication Commission so that it is effective for the KPK Institution?

## III. RESEARCH METHOD

This research is normative legal research, this type of research examines the existence of the Supervisory Board which refers to existing legal norms or statutory regulations. Data collection was carried out by taking primary legal materials, namely the 1945 Constitution of the Republic of Indonesia (1945 Constitution of the Republic of Indonesia), Law Number 19 of 2019 concerning the Corruption Eradication Commission, as well as secondary legal materials obtained from Corruption Perception Index data. (IPK) in Indonesia before and after the existence of the KPK supervisory board, as well as various other reading references. This type of research is reform-oriented research. Terry Hutchinson stated that reform-oriented research means critically improving the appropriateness of existing legal regulations and then recommending changes to regulations that are deemed inappropriate.<sup>2</sup> This research uses a conceptual approach to find out existing conceptualizations and theories, such as the theory of the vitality and effectiveness of the KPK Supervisory Board as watcher of the watcher.

## IV. LITERATURE REVIEW

### A. Role and Function of the Corruption Eradication Commission in Indonesia

Corruption is classified as a special crime and of course requires efforts to eradicate it through special measures. Handling of criminal acts of corruption in Indonesia is handled by the Corruption Eradication Commission (KPK). The duties, authority and obligations of this institution are clearly regulated in Law Number 19 of 2019 concerning the Corruption Eradication Commission. The Corruption Eradication Committee (KPK) is a special law enforcement agency, meaning that all efforts to eradicate and prosecute corrupt criminal behavior in Indonesia can be maximized. Even though the Corruption Eradication Commission is not the core law enforcement institution in the integrated criminal justice system in Indonesia, its duties and authorities, as well as the responsibilities it must carry out, are part of law enforcement in Indonesia, especially the prevention and prosecution of crime. violation. corrupt behavior. The Corruption Eradication Commission is an organic commission, namely a commission that was born from Law Number 30 of 2002 concerning the Corruption Eradication Commission, which started from the public's distrust of the institution that investigated criminal corruption behavior in the past, the prosecutor's office.<sup>3</sup> government and police, as well as general concerns regarding the widespread criminal acts of corruption that occur and are carried out by government officials or those who have power. The definition of the Corruption Eradication Commission is clearly stated in Article 3 of the Corruption Eradication Commission Law which states "The Corruption Eradication Commission is a state institution within the executive power group, which in carrying out its functions and authority, independently and without any influence from other powers. Regarding the function of the Corruption Eradication Commission, it has been clearly regulated in Article 6 of the Corruption Eradication Commission Law which clearly states "The Corruption Eradication Commission is responsible for implementation responsibilities. : a. preventive measures so that Corruption Crimes do not occur; b. coordinating with agencies authorized to carry out the Eradication of Corruption Crimes and agencies tasked with implementing public services; c. monitor the administration of state government; d. supervision of agencies authorized to carry out the Eradication of Corruption Crimes; e. inquiry, investigation and prosecution of Corruption Crimes; and f. actions to implement the judge's determination and court decisions that have obtained permanent legal force."

The KPK was established with the aim of increasing the effectiveness and efficiency of efforts to eradicate corrupt criminal practices. In carrying out its functions and authority, the Corruption Eradication Committee relies on legal certainty, openness, accountability, public interest and proportionality. Corruption prevention and prevention are interdependent concepts. If effective efforts to eradicate corruption already exist, are effective and are known to potential perpetrators of corruption, then

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<sup>2</sup> Terry Hutchinson, *Researching and Writing in Law*, Thomson Reuters (Professional) Australia Limited, Pyrmont, 2018, h. 7.

<sup>3</sup> Muhammad Syahrudin, *Keberadaan Dewan Pengawas Komisi Pemberantasan Korupsi Pasca Revisi UU KPK*, Kajian Pembaruan Hukum, 31 Januari 2022. h. 87

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these efforts to eradicate corruption can have a strong deterrent effect for those who try to commit acts of corruption. The fear of being caught is a powerful deterrent.<sup>4</sup>

Based on this interpretation, it can be concluded that the Corruption Eradication Commission exists as a body whose function is to monitor and take action against all forms of criminal acts of corruption which are the common enemy of state managers in running the government so that it can run well, creating a government free from corruption, apart from that the Commission Corruption Eradication also plays an active role in supervising the government and its public institutions with the aim of preventing criminal acts of corruption, by carrying out investigations and investigating cases involving criminal acts of corruption, as well as carrying out wiretapping, searches and inspections, as well as collecting evidence. Apart from that, the Corruption Eradication Commission also plays a role in prosecuting perpetrators of corruption in court, plays a role in the trial process, provides legal support to victims of criminal acts of corruption, and plays a role in supervising decision making and implementing sanctions as well as returning assets resulting from criminal acts of corruption. The important role of the Corruption Eradication Commission is expected to help overcome and reduce corruption systematically and wisely.

### ***B. Role and Function of the Corruption Eradication Commission (KPK) Supervisory Board***

Based on Law Number 19 of 2019 concerning the Second Amendment to Law Number 19 of 2002, the role of the KPK supervisory board is needed because there are legal updates or improvements so that the prevention and eradication of corruption in Indonesia runs well and in detail. The role of the KPK Supervisory Board is to supervise the implementation of the functions and authority of the Corruption Eradication Commission. The supervision carried out by the Supervisory Board over the Corruption Eradication Commission (KPK) is fundamentally easy to understand, but to implement and have correct and real limits regarding the supervision carried out by the supervisory board is very difficult to understand. The role of the supervisory board as in Article 37B of Law number 19 of 2019 is:

1. supervise the implementation of the duties and authority of the Corruption Eradication Commission; give permission or not give permission for wiretapping, search and/or confiscation;
2. prepare and establish a code of ethics for the Leaders and Employees of the Corruption Eradication Commission;
3. receive and follow up on reports from the public regarding alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission or violations of the provisions of this Law;
4. holding a hearing to examine alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission; And
5. evaluate the performance of the Corruption Eradication Commission Leadership and Employees periodically 1 (one) time in 1 (one) year.

Apart from the role of the KPK supervisory board in Article 37B of Law Number 19 of 2019, there is a role for the KPK supervisory board according to Constitutional Court Decision No. 70/PUU-XVII/2019, namely supervising the implementation of the duties and authority of the Corruption Eradication Commission; prepare and establish a code of ethics for the Leaders and Employees of the Corruption Eradication Commission; receive and follow up on reports from the public regarding alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission or violations of the provisions of this Law; holding a hearing to examine alleged violations of the code of ethics by the leadership and employees of the Corruption Eradication Commission; evaluate the performance of the Corruption Eradication Commission Leadership and Employees periodically 1 (one) time in 1 (one) year.

Constitutional Court Decision No. 70/PUU-XVII/2019, namely a request for a wiretapping permit from the KPK Supervisory Board, in this case a wiretapping permit is not necessary, because the Supervisory Board is not a law enforcement officer. There is no need to carry out search permits and seizure permits from the KPK Supervisory Board because they are not elements of law enforcement. The KPK Supervisory Board is related to the role and function of the Supervisory Board. The existence of the Supervisory Board in the Eradication of Corruption (KPK) is to promote the supervisory function of the implementation of the functions and authority of the Corruption Eradication Commission itself which is not yet available in the Commission's organs. The function of the KPK Supervisory Board includes checks and balances which function to prevent arbitrariness or abuse of power by the KPK and must balance organizational power that is too high/strong<sup>5</sup>.

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<sup>4</sup> Ulang Mangun Sosiawan, Peran Komisi Pemberantasan Korupsi (KPK) Dalam Pencegahan Dan Pemberantasan Korupsi, Pendidikan Hukum De Jure Vol.19 No.4 (Desember 2019) h. 522-524

<sup>5</sup> Iqbal Maulanan, Mas Anienda Tiem Fitriyah, Peran Dewan Pengawas KPK Dalam Sistem Ketatanegaraan Di Indonesia, Law and Social Political Governance Vol. 3 No.1 (Januari-April 2023), h. 965



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### ***C. Supervisory Board as Watcher Of The Watcher***

The KPK institutional organ consists of three core parts in accordance with Article 21 of Law Number 19 of 2019 concerning the Second Amendment to Law Number 30 of 2002 concerning the Corruption Eradication Commission, which confirms that the Corruption Eradication Commission (KPK) consists of a "Council Supervisors totaling five people; Leadership of the Corruption Eradication Commission which consists of 5 five members from the Corruption Eradication Commission; Supervisor of the Corruption Eradication Commission." The supervisory board is part of the KPK institution. The formation of the supervisory board aims to monitor the implementation of the KPK's duties and authority in accordance with those mandated in Article 37a paragraph (1) of the KPK Law.

The existence of the supervisory board has become a hot topic of discussion, the articles explaining the existence, function, duties and authority of the KPK supervisory board have also become one of the articles that has attracted quite a lot of public attention and is considered a controversial article. Some parties argue that the KPK's independent status has been stripped away by the existence of this supervisory board. However, not all parties think that the existence of this supervisory board will disrupt or hinder the work of the Corruption Eradication Commission. Mahfud M.D, one of the constitutional law experts who currently serves as the coordinating minister for political, legal and security affairs, supports the existence of the KPK Supervisory Board on the grounds that the KPK needs to be supervised because some KPK commissioners are sometimes unaware of the existence of sting operations (OTT). Kurnia Ramadhana, a researcher at Indonesian Corruption Watch (ICW), believes that the formation of the KPK management is prone to conflicts of interest. The directors' duties also pose a risk of danger as they determine wiretapping and eavesdropping orders, where information can be leaked to members of the DPR and the Indonesian government. In this case, the reason is that the members of the KPK Supervisory Board are appointed by the President and in the following period these members are selected by the DPR, especially those selected through the political party process to elect the Board Supervisor.

At the end of 2019, President Jokowi officially appointed five members of the KPK Supervisory Board for the period 2019 to 2023, where the five members of the Supervisory Board consisted of Artidjo Alkostar, Harjono, Albertina Ho, Tumpak Hatorangan Panggabean and Syamsudin Haris.<sup>6</sup> The Supervisory Board, which carries out its supervisory function over the work of the Corruption Eradication Committee, is expected to guarantee equality of rights before the law and also prevent arbitrary actions. In Lotulung's opinion, "supervision is needed by all state institutions to avoid irregularities, and is aimed at maximizing performance. "Therefore, the formation of this Supervisory Board is a check and balance so that the KPK is guaranteed to carry out its authority in accordance with the rules". Indonesia Corruption Watch (ICW) believes that the existence of this supervisory board will slow down the KPK's performance in eradicating corruption because the problem lies in the existence of the Control Board, an institution that has a big influence in decision making, especially on the issue of licensing investigations and allowing wiretapping, which is called -says it will slow down the decision-making process. Therefore, even though there are quite a lot of people who are qualified in the legal field, the problems that arise with the existence of this supervisory board cannot still be eliminated.

The Corruption Eradication Commission's efforts have actually developed into various efforts, such as preventive and enforcement efforts; Examples include efforts to monitor, synchronize, investigate, prosecute and inspect.<sup>7</sup> In fact, the Corruption Eradication Commission (KPK) is expected to lead institutions in eradicating corruption quickly. Investigation, inquiry and prosecution or also known as a trigger mechanism are the authorities of the Corruption Eradication Commission in the context of prevention and action. Approaching the reform era, the Corruption Eradication Committee (KPK) has developed into a reliable state institution tasked with eradicating corrupt practices. The Corruption Eradication Commission (KPK) is considered to have had a positive impact in its formation by saving state finances in both preventive and repressive forms.<sup>8</sup>

The Corruption Eradication Committee (KPK) strategy in eradicating corruption is still considered aggressive, the Corruption Eradication Commission (KPK) prioritizes prosecution over preventing criminal acts of corruption. In reality, aggressive action efforts such as those made by the Corruption Eradication Commission have not resulted in significant effectiveness in reducing

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<sup>6</sup> Kedudukan Dewan Pengawas KPK Terhadap Eksistensi KPK Dalam Pemberantasan Korupsi di Indonesia, Jurnal Simbur cahaya, Vol. XXIX No.2, Desember 2022, h. 311.

<sup>7</sup> Bambang Widjojanto & Abdul Fickar Hadjar, Reformasi Dikorupsi, KPK Dihabisi: Sebuah Catatan Kritis, Malang, Intrans Publishing, 2020, h. 59.

<sup>8</sup> Ridwan Azali, Efektivitas Peran Komisi Pemberantasan Korupsi Dalam Langkah Pencegahan Tindak Pidana Korupsi Pada Pejabat di Indonesia Periode 2015-2020, Das Sollen Kajian Kontemporer Hukum dan Masyarakat, ISSN 1111-1111, Oktober 2022

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corrupt practices. Apart from that, these changes are also related to the corrupt behavior of government officials. The Corruption Eradication Committee (KPK) strategy has so far prioritized enforcement rather than prevention. This has resulted in fundamental weaknesses in the Corruption Eradication Commission (KPK) Law, the absence of an independent, external oversight agency for the Corruption Eradication Commission (KPK) to ensure that the Corruption Eradication Committee (KPK) does not abuse its authority and carry out irresponsible actions and makes the Corruption Eradication Commission a political tool that violates the law, law and ethics and can maintain its independence and integrity. The presence of the KPK supervisory board also acts as a watcher of the watcher (supervisor rather than supervisor) of independent state institutions that monitor criminal acts of corruption, in this case the Corruption Eradication Commission (KPK).

### ***D. Legal Policy for the Corruption Eradication Commission Supervisory Board to Be Effective at the KPK Institution***

The endless and unresolved corrupt practices in Indonesia are the basis for changes to the Corruption Crime Law. The government is responding to this problem by strengthening the KPK institution through changes to the KPK Law. The uncontrolled increase in criminal acts of corruption will bring disaster not only to the life of the national economy but also to the life of the nation and state in general. Widespread and systematic criminal acts of corruption are also violations of the social and economic rights of the community, and therefore all criminal acts of corruption can no longer be classified as ordinary crimes but have become extraordinary crimes. Likewise, efforts to eradicate it can no longer be carried out normally, but require extraordinary methods.<sup>9</sup>

Theoretically, the purpose of supervision by the supervisory board of the corruption eradication commission is to prevent potential deviations in authority by the Corruption Eradication Committee (KPK) from undesirable actions. In addition, it can identify the extent to which institutional policies are adhered to and the extent to which work is carried out well, according to procedures, and as expected. According to Saiful Anwar, supervision or control over the actions of government officials is necessary so that the implementation of assigned tasks can achieve goals and avoid deviations.<sup>10</sup> UU no. 19 of 2019 concerning the Corruption Eradication Commission clearly regulates the duties and authorities of the KPK supervisory board. The implementation of duties by the supervisory board is further regulated in Presidential Regulation of the Republic of Indonesia No. 91 of 2019 concerning the Implementing Organ for Supervision of the Corruption Eradication Commission. This supervisory implementing organ is called the Secretariat of the Corruption Eradication Commission Supervisory Board. The task of this implementing organ is to provide operational administrative and technical support to the KPK Supervisory Board. Transparency International Indonesia (a global corruption observer), stated that the Corruption Perception Index (CPI) score in 2019 was 40 out of 100. This result shows that the best efforts to eradicate corruption completely in all components of the country are being carried out well and optimally. It cannot be denied how difficult it is to resolve the problem of corruption in Indonesia, even law enforcement officials are still unable to stop the increasing number of corrupt practices. Thus, corruption is ingrained in almost all government institutions in Indonesia.

From a substantive perspective, one of the disturbing contents of the a quo Corruption Eradication Commission Law is the presence of a Supervisory Board within the KPK. The existence of the Supervisory Board is disorienting because it has authority that it should not have.<sup>11</sup> In this case, the Supervisory Board is considered not only to supervise the performance of the Corruption Eradication Commission but is considered to be able to weaken the institution. Article 21 paragraph (1) letter a. In accordance with the provisions of Article 37A paragraph (1) of Law Number 19 of 2019 which states that in order to supervise the implementation of the duties and authority of the Corruption Eradication Commission, a Supervisory Board is formed, as well as Article 37B paragraph (1) letter a which states that one of the duties of the Commission's Supervisory Board Corruption Eradication is to supervise the implementation of the duties and authority of the Corruption Eradication Commission, so it can be said that the position of the KPK supervisory board is as supervisor of the KPK. Based on Article 21, it can be interpreted that the Supervisory Board is also the KPK. If Article 37A paragraph (1) which states that in order to supervise the implementation of the duties and authority of the Corruption Eradication Commission, a Supervisory Board is formed, is based on Article 21, then it can be interpreted that the Supervisory Board supervises the Corruption Eradication Commission which includes the Supervisory

<sup>9</sup> Arman Tjoneng, Christin Septina Basani, Novalina Sidabutar, Menguji Kewenangan Dewan Pengawas Komisi Pemberantasan Korupsi Dalam Pemberian Izin Pengegedahan Sebagai Tindakan Merintang Proses Penyidikan (Obstruction- Of Justice), *Esensi Hukum*, Vol. 2 No. 2 Desember 2020. H. 58-61

<sup>10</sup> Saiful Anwar, *Sendi-Sendi Hukum Administrasi Negara*, (Jakarta: Glora Madani Press, 2004), h.127.

<sup>11</sup> Muhammad Helmi Fahrozi, "Telaah Dewan Pengawas Komisi Pemberantasan Korupsi dalam Perspektif Aliran Sociological Jurisprudence", *Lex Jurnalica* vol. 17, No. 3 (Desember 2020): h. 307.

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Board. In other words, it could be said that the Supervisory Board supervises the supervisory board or the KPK supervises the KPK. This means that if Article 37A paragraph (1) is based on Article 21, it will produce a vague meaning; The Supervisory Board supervises the Supervisory Board. The urgency of forming a policy for the Corruption Eradication Commission Supervisory Board as stated in article 37 B of Law Number 19 of 2019, is deemed inappropriate, in fact it actually weakens or limits the KPK's room for movement in implementing the Corruption Eradication, which should strengthen and encourage the KPK in eradicating corruption. in Indonesia.

### **V. RESULT AND DISCUSSION**

#### **A. Legal Certainty Value Theory**

According to Gustav Radbruch, the value of legal certainty is the condition that the law can function as the regulations must be obeyed and implemented. This understanding of the value of legal certainty provides an illustration that the law must be in accordance with human behavior and humans must carry out the laws that have been made. "Gustav Radbruch, an expert, put forward 3 basic ideas or objectives of law, namely justice, expediency, legal certainty." The three ideas or objectives of law cannot be separated in order to create welfare and prosperity for society. The value of legal certainty can be interpreted as clarity of norms, so that they become a way of life for society in accordance with regulations. Legal certainty is also interpreted as the clarity and firmness of the laws that apply in society. An explanation regarding the value of legal certainty must be that there is certainty between legal substance and law enforcement that is in line and does not depend on legal certainty, but rather that legal certainty is carried out in accordance with legal principles and norms to uphold legal justice.<sup>12</sup>

Gustav Radbruch's theory is that the values of benefit, justice and legal certainty cannot be separated from each other. These three values are interconnected with each other. This legal certainty is a completely different requirement and requires validity. The value of legal certainty must be in accordance with the facts and normative law. Gustav Radbruch's value of legal certainty has an important meaning in that not all reject legal certainty, but awareness of legal certainty is an important value in the legal system. The value of legal certainty needs to place higher moral values such as the value of justice. The fairness of the value of legal certainty is also relative and is understandable in conditions of maintaining the success of unfair consequences.

Based on Gustav Radbruch's theoretical explanation, the above application of the value of legal certainty can also be a reference tool for the Corruption Eradication Commission in dealing with corruption problems by establishing a supervisory board. The supervisory board formed by the President based on Article 37B of Law number 19 of 2019 concerning the Second Amendment to Law Number 30 of 2002 concerning the Corruption Eradication Commission must carry out its duties and authority. However, seen from another perspective, the presence of the KPK supervisory board actually does not provide legal certainty for the Corruption Eradication Commission (KPK) as an independent institution, because as in Article 37B the supervisory board's task is to hinder the KPK's performance in eradicating corruption, as evidenced by Article 37B letter b regarding give permission or not give permission for wiretapping, search and/or confiscation. Looking at the theory of legal certainty presented by Gustav Radbruch, there is a contradiction regarding the clarity of legal norms and legal firmness in the regulations that are made. Law Number 19 of 2019 hinders the function of the Corruption Eradication Commission (KPK) in carrying out its duties and authority to eradicate corruption because it must obtain permission from the supervisory board. The permission given by the supervisory board is a statement so that it can carry out the KPK's duties, but if this permission is not given by the supervisory board then the KPK will have difficulty carrying out its duties. Returning to the theory of legal certainty must be in accordance with justice, benefit and legal certainty.<sup>13</sup> The supervisory board is expected to carry out its duties in accordance with the theory of legal certainty, because this will make it easier to eradicate corruption in Indonesia.

#### **B. KPK performance 3 years before the Supervisory Board existed based on the Corruption Perception Index (CPI)**

##### **1. Performance KPK in 2016**

In 2016, Indonesia consistently showed an increase in efforts to eradicate corruption in the public sector. The eradication of the public sector will not be successful if it is not accompanied by concrete steps or performance by all parties to strengthen business integrity in the business and private sector. In 2016, Indonesia's Corruption Perception Index (CPI) score was at 37

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<sup>12</sup> Mario Julyano, Aditya Yuli Sulistyawan, Pemahaman Terhadap Asas Kepastian Hukum Melalui Konstruksi Penalaran Positivisme Hukum, Jurnal Crepido, Volume 01 No. 01 (Juli 2019) h. 14-15.

<sup>13</sup> R. Tony Prayogo, Penerapan Asas Kepastian Hukum Dalam Peraturan Mahkamah Agung Nomor 1 Tahun 2011 Tentang Hak Uji Materiil Dan Dalam Peraturan Mahkamah Konstitusi Nomor 06/Pmk/2005 Tentang Pedoman Beracara Dalam Pengujian Undang-Undang, Legislasi Indonesia Vol. 13 No. 2 (Juni 2016), Hal 194-195

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points, up slightly by one point. The CPI score is between 0-100, 0 means the country is very corrupt, 100 means the country is free from corruption. The increase in Indonesia's CPI score proves that the positive results of eradicating corruption in Indonesia are still continuing. The increase in Indonesia's CPI score increased by 5 (five) points in five years. In 2016, Indonesia's CPI score was 37 points and was ranked 90th out of 176 countries surveyed. Indonesia's CPI score rose 1 point and decreased 2 places from last year. This small increase in the CPI score can only overtake Thailand with (score 35, down) always above Indonesia from the last 5 years. The increase in Indonesia's CPI score has not been able to surpass Malaysia with a score of 49, Brunei with a score of 58 and Singapore with a score of 85. It should be seen that Indonesia is slightly better than Thailand and the Philippines, Vietnam and Myanmar, Cambodia. Indonesia will soon be on par with other countries whose CPI index is the same or higher than the regional and/or global average. Indonesia's entry into the G20 group will be a driving force for this improvement. This is based on the main recommendations from Transparency International (TI) in the 2016 Corruption Perception Index.<sup>14</sup>

### **2. Performance KPK in 2017**

Corruption perception index (CPI) Indonesia's 2017 Corruption Perception Index (CPI) performance was 37 and was in 96th position out of 180 countries surveyed. Indonesia's CPI score at this point is the same as last year, namely 2016.<sup>15</sup> The CPI score is in the range 0-100, 0 means the country is very corrupt, while 100 means it is free from corruption. There are 4 data sources that provide an increase in Indonesia's CPI, namely the World Economic Forum, Global Insight Country Risk Ratings, Bertelsman Foundation Transformation Index, IMD World Competitiveness Yearbook, two of which experienced stagnation and two experienced a decline. Transfarcy International provides recommendations to the government, private sector and civil society to play an active role in efforts to combat corruption in Indonesia, namely first, the government must strengthen anti-corruption policies, in particular regional governments can improve and use survey results as a reference for determining anti-corruption policies at the local level. Public organizations such as ministries, institutions, law enforcement officials and the House of Representatives at all levels are also trying to improve their systems. Second, economic entities must have anti-corruption policies and systems within the company to maintain a good reputation and avoid the risk of corruption. Third, civil society must monitor anti-corruption programs between the government and the private sector as a basis for positive and constructive assessments of public accountability.

### **3. Performance KPK in 2018**

The performance KPK based on the 2018 Corruption Perception Index is that Indonesia has participated as one of the countries assessed for the umpteenth time, meaning that based on the 2018 Corruption Perception Index (CPI) it is ranked 89th out of 180 countries surveyed with a score of 38.<sup>16</sup> This score increased by 1 point from the previous year, namely 2017. This proves that anti-corruption efforts are being implemented by various parties, both the government and the Corruption Eradication Committee, as well as business and society. This increase was contributed by the birth of a number of business convenience packages and investment-friendly licensing sectors, while the decline in scores was triggered by the rise of corrupt practices in the Indonesian political system. According to the Secretary General of Transparency International Indonesia, Dadang Trisasongko, a cross-analysis of data on democratic corruption trends throughout the world revealed that corruption is an epidemic that destroys democracy, corruption actually encourages democracy to produce a vicious circle, destroying democratic institutions, so the political system and democracy must be repaired to avoid this. corruption. Felim Salim as Chair of the Management Board of Transparency International Indonesia said that all exponents of the anti-corruption movement must work together in line with how to eradicate corruption. Fragile democratic countries, where the political rights of their citizens are not respected, actually become a prosperous ground for the practice of political corruption. Building democracy so that there is more dignity in terms of people's political rights being recognized, safeguarded and protected. Corruption can be fought and strengthen parts of democracy for real progress. Corruption Perception Index (CPI) data which provides the improvement of Indonesia's CPI in 2018 is Global Insight Country Risk Ratings and Political and Economy Risk Consultancy. Global Insight Country Risk Ratings made the largest increase with a value of 12 points from last year, due to the emergence or birth of a number of business convenience packages and investment-friendly

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<sup>14</sup> Transparency International, Corruption Perception Index 2016, <https://riset.ti.or.id/corruption-perceptions-index-2016/>, 1 Desember 2023

<sup>15</sup> Transparency International, Corruption Perceptions Index 2017, <https://riset.ti.or.id/corruption-perceptions-index-2016/>, 1 Desember 2023

<sup>16</sup> Transparency International, Corruption Perceptio0ns Index 2018, <https://ti.or.id/corruption-perception-index-2018/>, 1 Desember 2023

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licensing sectors. Political and Economic Risk Consultancy gave the largest decrease to IMD World Competitiveness with 3 points. The decline in scores was due to widespread corrupt practices in the Indonesian political system.

Based on the explanation above, data taken from Transparency International Indonesia (TII) in 2016, 2017, and 2018 saw an increase and decrease in the performance of the Corruption Eradication Commission in the 3 years before the supervisory board existed. This increase and decrease can be seen from 2016-2018. The existence of the Corruption Eradication Commission (KPK) before the Supervisory Board existed has increased. This is proven from the last three years. Indonesia's CPI score has risen 5 points in the last five years. The eradication of corruption carried out by the Corruption Eradication Commission lies in the public sector. Eradicating corruption in the public sector cannot be separated from the real work of all parties in strengthening the integrity of the business sector in Indonesia. Increasing the eradication of corruption in 2016-2018, policies created with an anti-corruption system in the city and each region regarding the private sector with a positive and constructive assessment of public accountability. This private sector has seen very good improvement as seen from the Global Insight Country Risk Ratings and Political and Economic Risk Consultancy. Global Insight Country Risk Ratings which makes business easier and investment-friendly licensing. This increase proves that the KPK's work is one step better before the supervisory board existed. The Corruption Eradication Commission can carry out its duties and authority as an independent institution and in accordance with its functions. There was also a decline in the 3 years before the supervisory board existed. This decline occurred in 2018. Indonesia's perception index score decreased due to the Covid-19 outbreak. The Covid-19 outbreak has seriously damaged existing democracy. Damage to democracy affects the political system. This political system relates to all exponents of political rights that are not addressed. This decline does not hamper the KPK's performance in eradicating corruption. Based on this explanation, before the existence of the KPK supervisory board, it carried out its functions well despite the Covid-19 outbreak.

### **C. Corruption Perception Index (CPI) Corruption Perception Index (CPI) 2 Years after the Supervisory Board existed**

#### **1. Performance KPK in 2020**

Corruption Eradication Committee Performance 2 Years after the Supervisory Board existed. In 2020, Indonesia's CPI score was 37/100 and was in 102nd position out of 180 countries surveyed. This score decreased by 3 points from 2019, which that year had a score of 40/100. The decline in Indonesia's CPI score in 2020 clearly proves that many policies that focus on the economic and investment sectors do not pay attention to the integrity sector, which results in corruption. In 2020, Indonesia was hit by the Covid-19 pandemic, this resulted in a large reduction which was combined by Global Insight and PRS carried out by business people for public services to streamline business processes based on the Corruption Perception Index (CPI).<sup>17</sup> On the democracy side, there was a decrease of 2 points given by Varieties of Democracy that in politics there is still deep corruption in Indonesia. Indonesia's CPI score in 2020 is 37, ranking 102, this shows that there are similarities with the country of Gambia, which has the same score and ranking as Indonesia.

#### **2. Performance KPK in 2021**

In 2021, Transparency International Indonesia (TII) informed about Indonesia's Corruption Perception Index (CPI) in 2021. In 2021, Indonesia's CPI score increased by 1, from a score of 37 to a score of 38 and ranked 96. Indonesia's CPI score can be said to be at below average, because the Global CPI score is 43. Compared with several countries in the ASEAN region, Indonesia's Corruption Perception Index score is below Singapore (score 85), Malaysia (score 48), Timor Lester (score 41) and Vietnam (score 39). The Indonesian corruption perception index was assessed from the combined results of 9 surveys conducted, data sources, and involving expert assessors. The 9 surveys that serve as benchmarks in the CPI assessment are Political Risk Service, IMD Business School World Competitiveness, Global Insight Country Risk Ratings, World Economic Forum Executive Opinion Survey, Bertelsmann Stiftung Transformation Index, Economist Intelligence Unit Country Risk Service, Political and Economic Risk Consultancy, Varieties of Democracy Project, and World Justice Project Rule of Law Index. Based on these 9 assessment benchmarks, the themes measured and scored by the surveyors include the risks of corruption, economics, transformation, politics, democracy and law enforcement in Indonesia.

Based on the explanation above, data taken from Transparency International Indonesia (TII) in 2020 and 2021, the KPK's performance after the existence of the KPK Supervisory Board resulted in the Corruption Eradication Commission (KPK)

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<sup>17</sup> Transparency International, Corruption Perceptio0ns Index 2020, <https://ti.or.id/indeks-persepsi-korupsi-2020-korupsi-respons-covid-19-dan-kemunduran-demokrasi/#:~:text=Indonesia%20sejak%20pertama%20kali%20CPI,dari%20180%20negara%20yang%20disurvei>, 1 Desember 2023



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experiencing serious problems, namely the loss of the KPK's independence. The loss of the KPK's independence was due to changes in Law Number 30 of 2002 concerning the Corruption Eradication Commission to Law Number 19 of 2019 concerning the Second Amendment to Law Number 30 of 2002 concerning the Corruption Eradication Commission. Based on data from the Corruption Perception Index (CPI) after the amendment to Law Number 30 of 2002 and the formation of the Supervisory Board, the Corruption Eradication Commission has not been able to handle the existing corruption problem and resulted in Indonesia experiencing a decline or decline in 2019, namely a score of 40 with a ranking of 85 out of 180 countries. . Based on a survey conducted by Transparency International which had been running for a long time before the enactment of Law Number 19 of 2019, the existence of the KPK supervisory board did not necessarily strengthen the eradication of corruption in Indonesia. This decline resulted in the KPK experiencing slow work. This occurred due to the dualism of leadership in the KPK. The duties and authority of the supervisory board are to give permission and not to give permission for wiretapping, search and/or confiscation. This decline destroyed the existence of the Corruption Eradication Committee (KPK), implemented internally, which changed the tolerance for corruption

The KPK's performance after the presence of the KPK Supervisory Board in the last 2 years, to be precise in 2022, Indonesia will be at a score of 34/100 and ranked 110th out of 180 countries. As a result, Indonesia was able to increase its CPI (Corruption Perception Index) score by 2 points from a score of 32. This condition shows that the Corruption Eradication Committee (KPK) in its practice of eradicating corruption in Indonesia is progressing slowly because the Corruption Eradication Commission (KPK) must obtain permission from the Supervisory Board to carry out investigations and investigations. According to the Secretary General of Transparency International Indonesia J. Danang Widoyoko, the decline or fall in Indonesia's CPI score after the revision of the Corruption Eradication Committee Law in 2019 was "a change in strategy to reduce law enforcement and shift to preventing corruption". This analysis received predictions from various parties, including state officials, regarding the decline in Indonesia's Corruption Perception Index (CPI) score.<sup>18</sup>

### V. CONCLUSIONS

1. The KPK Supervisory Board formed by the President had the effect of hampering the performance of the Corruption Eradication Commission (KPK) and eliminating the KPK's status as an independent institution. The Corruption Eradication Commission (KPK) in carrying out its duties and authority is assisted by the KPK Supervisory Board, however, in carrying out its duties and authority there are problems regarding granting permission or not giving permission for wiretapping, search and/or confiscation or as in Article 37B letter b of the Law number 19 of 2019 which hinders the performance of the Corruption Eradication Commission (KPK) itself) to deal with Corruption problems in Indonesia, so that in the Corruption Perception Index (CPI) survey after the formation and enactment of Law Number 19 of 2019 and the Supervisory Board resulted in Handling the Eradication of Corruption in Indonesia it is progressing slowly, experiencing setbacks, as well as a fall in the Corruption Perception Index CPI score).
2. The existence of the KPK supervisory board actually does not completely hinder the performance of the KPK, on the other hand, the presence of this supervisory board is a form of prevention against various forms of abuse of power. Supervision carried out by the KPK supervisory board is quite important considering that the supervision carried out is an effort to realize the KPK institution with legal instruments and a comprehensive institutional administration system. The supervision carried out also seeks to ensure that sound institutional governance is maintained and implemented, and that decisions taken regarding its implementation are related to other compliance tools and standard operational procedures. Corruption Eradication Commission. So that the KPK Council becomes an entity that carries out supervisory duties, its presence is also able to reduce public concerns. The presence of the Corruption Eradication Commission Board allows for an accounting of the KPK's performance because they are the ones who handle the reporting which is then submitted to the President. The KPK Council was formed as an effort to supervise organizational operations and mitigate potential risks of abuse of power. The aspect of judicial spirit is also not lost on the presence of the KPK Council because the KPK cannot be separated from it. To ensure that the responsibilities, authority and functions of the Corruption Eradication Commission are carried out in accordance with the relevant legal framework and that corruption in Indonesia can be dealt with more quickly, supervision of the Commission must be carried out by the Corruption Eradication Commission Board.

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<sup>18</sup> Sustain, Increases by 1 Score on Indonesia's Corruption Perception Index (CPI) in 2021 Still Below Average, <https://sustain.id/2022/02/03/naik-1-skor-indeks-persepsi-korupsi-cpi-indonesia-tahun-2021-masih-dibawah-rata-rata/>, 1 Desember 2023

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## The Effect of Economic Growth, Local Original Revenue, General Allocation Fund, Special Allocation Fund, and Profit Sharing Fund on Capital Expenditure of The NTB Provincial Government



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**ABSTRACT:** The authority and policy of regional autonomy is carried out by the regional government. Local governments can facilitate economic growth and regional development, reduce community inequality, and advance community services more effectively according to the needs of local communities. This research aims to determine the effect of economic growth, local original income, general allocation funds, special allocation funds, profit sharing funds on capital expenditure in the West Nusa Tenggara province. By using quantitative research and using panel data regression model tools. The study's results stated: (1) Economic Growth is not significantly influenced by capital expenditure with  $t$  calculated at  $0.3562 >$  of its significance value of  $0.05$ . (2) PAD does not significantly affect capital expenditure because the calculated  $t$  result is  $0.9951 >$  its significance of  $0.05$ . (3) In DAU, the result  $t$  is calculated at  $0.5908 >$  of its significance value of  $0.05$ . Thus, DAU has no significant effect on capital expenditure. (4) DAK has a significant influence on capital expenditure. It can be seen from the  $t$  count of  $0.00 <$  from the significance value of  $0.05$ . (5) DBH is not significantly affected by capital expenditure. With a calculated  $t$  value of  $0.5275 >$  of the significance value of  $0.05$ , the variables Economic growth, regional original revenue, general allocation funds, and profit sharing funds do not significantly affect capital expenditure. In contrast, the variables of Special allocation funds significantly impact capital expenditure.

**KEYWORDS:** Economic Growth, Local Original Revenue, General Allocation Fund, Special Allocation Fund, Profit Sharing Fund and Capital Expenditure

### I. INTRODUCTION

The implementation of decentralization in Indonesia has been in effect since January 1, 2001, with regulations stipulated by regional autonomy. This signifies the transfer of fiscal policy from the central government to local governments. (A et al., 2021).

Local governments are given policies to regulate their political affairs per Law Number 23 of 2014. Regional autonomy allows autonomous provincial governments to manage and run their political affairs. Regional autonomy can give local governments the freedom to make financial plans and take regulatory policies to develop their own regions, which has an impact on regional economic growth. (Kuncoro, 2004) in (Dini Arwati, 2013).

Local governments issue capital expenditure budgets as the realization of the regional budget, which can have a multiplier effect on changes in the rate of economic growth in the APBD structure and positively impact economic growth. (Sugiyanta, 2016) in (Waskito et al., 2019) Increased government spending can improve public services, increase consumption, and encourage private sector investment. (Nguyen & Bui, 2022). In the deep, the shopping area is only used for daily needs, which is relatively unproductive. The capital expenditure budget should be regulated to meet adequate regional needs for the smooth implementation of government functions and public facilities. (Rendy, 2018) in (Yuliantoni & Arza, 2021).

Local Original Source of Revenue (PAD) is collected on the basis of laws and regulations. In addition, there are General Allocation Funds (DAU), Special Allocation Funds (DAK), and Profit Sharing Funds (DBH), which are components of funds sourced from the State Budget given to local governments to meet their regional development needs. (Syukri & Didiharyono, 2018) in (Shukri & Hinaya, 2019).

NTB Province has investment attractions, infrastructure, public services, and tourism. It is proven that NTB has won Indonesia's Attractiveness Awards 2019 award in the public service category; this has great potential to attract investors in

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various industries and business people to advance the NTB economy. In the NTB government, it is expected to be able to improve the economy and spur optimal regional development in managing the household. Since the government uses investment to invest in various sectors, government spending leads to economic growth, which is reflected in investment. The allocation of capital expenditure is used to facilitate the needs of the community in carrying out government objectives and productive public facilities. (Rendy, 2018) in (Yuliantoni & Arza, 2021).

**Table 1. Government Capital Expenditure by District/City in West Nusa Tenggara Province in 2018-2022.**

No	Kab/City	Year				
		2018	2019	2020	2021	2022
1.	West Lombok	316.230.000.000	444.730.000.000	356.380.000.000	204.500.000.000	247.000.000.000
2.	Central Lombok	358.940.000.000	413.390.000.000	282.550.000.000	225.850.000.000	366.210.000.000
3.	East Lombok	376.740.000.000	463.870.000.000	283.380.000.000	406.730.000.000	611.970.000.000
4.	Sumbawa	322.610.000.000	445.890.000.000	214.270.000.000	184.390.000.000	200.550.000.000
5.	Dompu	247.500.000.000	248.750.000.000	133.180.000.000	137.600.000.000	211.090.000.000
6.	Bima	396.660.000.000	316.130.000.000	256.020.000.000	261.580.000.000	262.800.000.000
7.	West Sumbawa	357.030.000.000	236.260.000.000	118.630.000.000	146.870.000.000	165.980.000.000
8.	North Lombok	202.430.000.000	336.230.000.000	127.930.000.000	134.500.000.000	181.790.000.000
9.	Mataram City	316.820.000.000	331.560.000.000	209.070.000.000	185.550.000.000	174.070.000.000
10.	Bima City	234.620.000.000	191.650.000.000	165.720.000.000	138.380.000.000	153.810.000.000

Source : [djpk.kemenkeu.go.id](http://djpk.kemenkeu.go.id)

In the data above, there is an increase and decrease in income every year. If it is seen that a high percentage of capital expenditure indicates that the regional economy is increasing, and vice versa, if the level of regional expenditure is low then the regional economy is declining..(Waskito et al., 2019). From 2018 to 2022, the realization of provincial/municipal capital expenditure in West Nusa Tenggara varies. From the table, it can be seen that the average budget realization in 2020 tends to decrease. The cause is the economic downturn due to the emergence of new coronavirus (Covid-19) infections. From the data above, North Lombok Regency tends to have lower capital expenditure than other West Nusa Tenggara Province districts. The reason is that the tourism industry in the North Lombok region has not returned to optimal because the earthquake damaged a lot of building infrastructure, and the area is still classified as rural.

Based on previous research (Ayem & Pratama, 2018), Capital expenditure is influenced by the variable "economic growth," but capital expenditure is not influenced by the variable "local original income," "general allocation fund," or "special allocation fund." In research.(Waskito et al., 2019) The variables of economic growth, local original income, and profit-sharing funds are not influenced by capital expenditure, but the variables of general allocation funds and special allocation funds affect capital expenditure. Moreover, according to research (Shukri & Hinaya, 2019), Capital expenditure is influenced by local original income variables, while variables "Economic Growth", "General Allocation Fund" and "Special Allocation Fund" are not affected by Capital Expenditure.

Based on this background, it is essential to conduct research on the effect of economic growth, local original income, general allocation funds, special allocation funds, and profit-sharing funds on West Nusa Tenggara province's capital expenditure. Therefore, this study is entitled "**The Effect of Economic Growth, Local Original Income, General Expenditure, Special Allocation Fund and Profit Sharing Fund on Capital Expenditure in West Nusa Tenggara Province**".

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## II. RESEARCH HYPOTHESIS

### A. ECONOMIC GROWTH

According to Sukirno (1996, 33), a country's economic growth is said to be successful, seen from its economic development; for economic progress, a way is needed to increase per capita output constantly for a long time. Increased economic growth shows that people in the region are prosperous and vice versa. However, we need to consider another indicator: income distribution. (Waryanto, 2017)

Impact of Economic Growth on Capital Expenditure

Economic growth can increase per capita production. Fiscal decentralization and economic growth relevantly affect economic growth. When economic growth increases, investment also increases; on the other hand, if economic growth decreases, investment also decreases. (Ayem & Pratama, 2018). In research (Ayem & The results of the study show a positive relationship between economic growth and capital expenditure.

*H1: Economic growth has a positive effect on capital expenditure.*

### B. LOCAL ORIGINAL REVENUE (PAD)

Regional Original Revenue (PAD) is revenue obtained by local governments that collect funds to meet regional needs and fund daily activities and development, including local taxes, consisting of regional levies, business profits, and other local original revenues. (Ferdiansyah et al., 2018) The increase in PAD will increase the amount of capital expenditure allocation.

The Effect of Local Original Revenue (PAD) on Capital Expenditure

The revenue generated by the government is regulated by the regulations of Law Number 23 of 2014. According to research (Shukri & Hinaya, 2019), the influence provided by Regional Original Revenue (PAD) impacts capital expenditure. Research (Rosmayanti and H Haliah and Andi Kusuma, 2023) PAD positively impact capital expenditure, and the increase in capital expenditure is also influenced by local government revenue. So the hypothesis can be:

*H2: PAD has a positive effect on capital expenditure*

### C. GENERAL ALLOCATION FUND (DAU)

Based on (Government Regulation No.55 of 2005) DAU sources from state revenues and allocated based on extraterritorial resources to meet spending needs related to decentralization. (Rosmayanti and H Haliah and Andi Kusuma, 2023). Effect of DAU (General et al.) with Capital Expenditure

The source of DAU revenue is the state budget. It is then distributed to supplement needs and aims to distribute government financial needs evenly between regions to cover costs associated with decentralization requirements. (Yuliantoni & Arza, 2021). According to (Arza, 2021), DAU positively impacts capital expenditure allocation. If regional capital expenditure is high, the higher the resources allocated by the central government to the regions to improve their residents' welfare. Research (Hairiyah et al., 2017), (Rosmayanti and H Haliah and Andi Kusuma, 2023) in the General Allocation Fund research is influenced by capital expenditure. So the hypothesis arises:

*H3: DAU has a significant effect on Capital Expenditure*

### D. SPECIAL ALLOCATION FUND (DAK)

Special allocation funds are state income that is transferred to regions to finance activities/needs so that they are in line with state interests. (Rahayu & Noviarti, 2021).

Effect of DAK (Special et al.) with Capital Expenditure

Large-scale DAK deployments tend to have a higher capital investment (Hairiyah et al., 2017). DAK is categorized as an APBN budget that local governments transfer to finance specific needs that are used as a priority for the state. (Ayem & Pratama, 2018). The results of this research indicate that there is a relevant impact on capital expenditure, so a hypothesis is obtained:

*H4: DAK has a positive effect on Capital Expenditure*

### E. PROFIT SHARING FUND (DBH)

Profit sharing funds, namely budgets derived from state income allocated to regions according to the percentage of meeting their needs, are stated in Law Number 33 of 2004 concerning balancing funds between central and regional governments. (Subhan (2015)) (Tiyas &.

Effect of Profit Sharing Fund (DBH) with Capital Expenditure

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Profit Funds (DBH) are distributed to local governments within a specific time to meet regional needs as part of the implementation of decentralization, and the government can carry out its administrative obligations, such as improving community facilities and building and improving regional facilities. (Waskito et al., 2019).

In research by (Wuryani, 2022) and (Handayani et al., 2022), The results of the DBH variable show a positive impact on the capital expenditure of the state government. So, there is a hypothesis:

*H5: DBH affects Capital Expenditure*

## F. CAPITAL EXPENDITURES

Local government expenditure as capital expenditure is a general administrative expenditure to increase regional assets and wealth. Then, the expenditure is used to increase daily expenses, such as maintaining adequate facilities, for more than one year. (Halim, 2012) in (Rasu et al., 2019).

The word investment reminds us of investment. According to Halim (2008), the word investment has different meanings depending on the context that interprets it. In accounting, investment can arise from the difference between income and capital expenditures in the context of expenditure. In accounting, investments can arise from comparing income expenditures with capital expenditures in the context of expenses (Sularso & Restianto, 2011) (Waryanto, 2017).

## III. RESEARCH METHODOLOGY

The study used six variables: Economic Growth, Local Original Income, General Allocation Fund, Special Allocation Fund, Profit Sharing Fund, and Capital Expenditure. This type of data is used secondary data obtained on the website of the Central Statistics Agency (BPS) of West Nusa Tenggara Province. There are ten districts/cities from 2018 to 2022. Researchers will use panel data regression equations. Researchers use Eviews 12 as a tool to analyze data.

### A. Variable Measurement:

#### Capital Expenditure

Capital expenditure is measured directly based on the financing of investment activities (fixed assets). With variable parameters:

$$\text{Capital Expenditure} = \text{Land Expenditure} + \text{Equipment and Machinery Expenditure} + \text{Building and Building Expenditure} + \text{Road, Irrigation and Network Expenditure} + \text{Other Asset Expenditure}$$

#### Economic Growth

Economic growth is a procedure by which per capita output, expressed as the gross domestic output of a region per capita, increases and is calculated using the formula:

$$\text{Economic Growth} = \frac{(\text{PDRBt} - \text{PDRBt-1})}{(\text{GRRBt-1})} \times 100\%$$

Information:

GDP: Gross Regional Domestic Product for the Current Year

GDP-1: Gross Regional Domestic Product Last Thun

#### Local Original Revenue (PAD)

The source of PAD comes from the proceeds of regional taxes (HPD), regional levies (RD), regional business revenues (PLPD), and other legitimate income (LPS) and is formulated as follows:

$$\text{PAD} = \text{HPD} + \text{RD} + \text{PLPD} + \text{LPS}$$

Information:

PAD: Local Original Revenue

HPS: Local Tax Proceeds

RD: Regional Retribution

PLPD: Revenue from Regional Company Profits

LPS: Other Legitimate Income

#### General Allocation Fund (DAU)

DAU is intended for provincial and district/city areas; the following is the formula:

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$$DAU = \text{Fiscal Gap} + \text{Base Allocation}$$

Where

$$\text{Fiscal Gap} = \text{Fiscal Needs} - \text{Fiscal Capacity}$$

### Special Allocation Fund (DAK)

Special allocation funds are particular budgets the center allocable based on a ratio scale. The DAC distribution ratio is regulated in Article 54 PP Number 55 of 2005 in two parts:

- 1) Determination of particular areas that get DAK and
- 2) Determination of the amount of DAK allocation for each region

DAK weight: Area weight + Technical weight

The determination of the quality of an area by:

Area Weight: IFW x CCI

Information:

IFW: Fiscal and Regional Index

CCI: Construction Costliness Index

The formula calculates the technical weight:

IT: Technical Index

CCI: Construction Expensive Index

### Profit Sharing Fund (DBH)

Profit-sharing funds are balanced resources in the state budget intended for local governments in order to develop proper facilities and meet regional needs as part of the implementation of decentralization.

## IV. RESULTS OF DISCUSSION

### A. DESCRIPTIVE ANALYSIS

This analysis is used to determine the variables in the research. Data was obtained from the Central Statistics Agency (BPS) of West Nusa Tenggara Province for the period 2018 to 2022, with the variables economic growth, local original income, general allocation funds, special allocation funds, profit sharing funds and capital expenditure. The output of descriptive analysis using eviws 12 software to obtain variables is presented in the following table:

	N	Minimum	Maximum	Mean	Std.Dev.
PE	50	2.879.230	20379.44	9.570.876	4.492.009
PAD	50	4.61E+10	4.46E+11	1.87E+11	1.05E+11
DAU	50	3.71E+11	1.19E+12	6.86E+11	2.43E+11
DAK	50	9.88E+10	8.35E+11	3.11E+11	1.70E+11
DBH	50	2.75E+10	6.94E+11	9.10E+10	1.01E+11
BM	50	1.19E+11	6.12E+11	2.67E+11	1.08E+11

### B. CLASSICAL ASSUMPTION TEST

When evaluating a regression equation, classical assumption tests are used to check whether there is noise in the test, so normality, multicollinearity, autocorrelation, and heteroscedasticity tests are carried out.

#### 1) Normality Test

The normality test is carried out with the bark-fallow test to see whether the data has been generally distributed by calculating the variance between skewness and kurtosis data.

H0: Normal distributed error

H1: Error not customarily distributed

Normality test results

P-Value	Result
0.280651	H0 accepted

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The estimation results on the normality test data obtained a p value of  $0.280651 > 0.05$ , which indicates that  $H_0$  is accepted so that the data is normally distributed.

### 2) Multicollinearity Test

Multicollinearity tests are carried out to prove that there is a regression model and correlation to independent variables. Multicollinearity can be identified using a valued matrix analysis ( $>0.90$ ); this indicates a multicollinearity problem in the equation model.

	Y	X1	X2	X3	X4	X5
BM	1.000000	0.363543	0.391414	0.710470	0.786121	-0.065447
PE	0.363543	1.000000	0.607820	0.409565	0.345536	0.612704
PAD	0.391414	0.607820	1.000000	0.479139	0.399748	0.060137
DAU	0.710470	0.409565	0.479139	1.000000	0.833848	-0.177715
DAK	0.786121	0.345536	0.399748	0.833848	1.000000	-0.090030
DBH	-0.065447	0.612704	0.060137	-0.177715	-0.090030	1.000000

Based on the acquisition of the multicollinearity test, the  $> 0.9$  matrix value is not obtained, meaning that the multicollinearity problem is not obtained.

### 3) Heteroscedasticity Test

Heteroscedasticity testing is embraced to measure whether an observation has the same variance equation of residuals. The Glejser test can be performed in heteroscedasticity testing. Here is a hypothesis before testing.

$H_0: \beta_k = 0$  (No heteroscedasticity)

$H_1: \beta_k \neq 0; k = 1, 2, \dots, K$  (Heteroscedasticity occurs)

The experimental acquisition of the assumption of heteroscedasticity is presented as follows:

Test results of heteroscedasticity assumption

Prob. Chi-Square (2)	Result
0.2339	$H_0$ accepted

Based on the data processing results above with the Glejser test obtained p-value, the value of Prob. Chi-Square at obs \* R-Square is  $0.2339 > 0.05$ , meaning the regression model is heteroscedastic. Therefore, it is concluded that  $H_0$  is accepted, meaning there is no heteroscedasticity problem.

### 4) Autocorrelation Test

Autocorrelation tests are needed to measure whether there is a relationship between the related equation model and variability disorders. The test used is the Breusch-Godfrey Serial Correlation LM Test in Autocorrelation experiments. Next, the result:

$H_0$  : No Autocorrelation

$H_1$ : Autocorrelation occurs

Autocorrelation assumption test results

Prob. Chi-Square (2)	Result
0.0232	$H_0$ accepted

Based on the acquisition of these tests, the value of Prob. Chi-Square in the Breusch-Godfrey Serial Correlation LM Test experiment of  $0.0232 < 0.05$  obtained the conclusion that  $H_0$  is accepted, which means that Autocorrelation is not obtained.

### Chow Test Results

Effects Test	Statistics	d.f.	Prob.
Cross-section F	2.855679	(9,35)	0.0124
Cross-section Chi-square	27.530698	9	0.0011

The experimental hypothesis was carried out using the Chow test, namely:

$H_0$ : Probability  $> 0.05$  : the model follows the common effect model

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H1 : Probability < 0.05 : the model follows the fixed effect model

In the data above, the probability of chi-square cross section is  $0.0011 < 0.05$ . Therefore, the result shows that H0 is rejected and H1 is accepted, meaning that the fixed effect model is more accurate than the common effect model for calculating panel data. The next procedure is used the Hausman Test.

## Hausman Test

Test Summary	Chi-sq. Statistics	Chi-sq. d.f.	Prob.
Cross-section random	25.024427	5	0.0001

The acquisition hypothesis made using the hausman test, is as follows:

H0: Probability < 0.05 Model followed by fixed effect model

H1: Probability > 0.05 Model followed by Random effect model

In the data, there is a random probability cross-section  $0.0001 < 0.05$  can be obtained H1 test rejected and H0 accepted, and the conclusion is that the Fixed Effect Model is appropriate to use.

## C. SIGNIFICANT TESTS

- Coefficient of Determination Test

The coefficient of determination test resulted in (R<sup>2</sup>) Adjusted R Square of 0.595397. In this regard, 59.5397% of the dependent variable Capital Expenditure can be explained by the independent variables Economic Growth, Original Regional Income, General Allocation Funds, Special Allocation Funds and Profit Sharing Funds.

- Test F

The F test is needed to understand whether the independent variable has an impact on the dependent variable (Ghozali, 2016). Test results :

F test results

Prob. (F -statistik )	Result
0.000	H0 accepted

Based on the test results, it shows a significant number of 0.000 means lower than the number of probabilities (p-values) of 0.05 so that it is concluded that the model is in decent condition

- Partial Test (t test)

The t test is carried out in order to determine the influence between one independent variable partially or individually on the dependent variable. Here's the test:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BM	8.39E+10	2.93E+10	2.860315	0.0065
PE	3729585.	3999440.	0.932527	0.3562
PAD	-0.000720	0.115434	-0.006234	0.9951
DAU	0.039868	0.073603	0.541668	0.5908
DAK	0.412529	0.090244	4.571248	0.0000
DBH	-0.091525	0.143723	-0.636814	0.5275

The results of partial testing of economic growth variables did not find a significant effect on Capital Expenditure, seen from the significant amount of Economic Growth of ( $0.3562 > 0.05$ ). Therefore, H1 states that Economic Growth has no effect on Capital Expenditure. In previous research (Marseno & Mulyani, 2020), showing that economic growth found no significant effect on government capital expenditure. This study supports previous research (Nurdiwaty et al., 2017) Showing economic growth found no effect on capital expenditure.



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In the variable of regional original income, there is no effect of capital expenditure, it can be seen from its significance of (0.9951 > 0.05) so that H1 states that PAD is not influenced by capital expenditure. Agree with researchers (Yuliani et al., 2021) Where local original income has no influence on capital expenditure. And research is supported by research (Kholidi et al., 2017) That is, local original income has no capital expenditure support.

Then for the DAU variable can have the same effect as the PE and PAD variables that are not affected by capital expenditure, which is the amount of significance (0.5908 > 0.05). So that H1 is not affected by capital expenditure. Agree with research (Rosmayanti and H Haliah and Andi Kusuma, 2023) that the General Allocation Fund is not affected by capital expenditure. At (Ferdiansyah et al., 2018) supports this study that DAU is not significantly affected by capital expenditure.

The DAK variable is influenced by capital expenditure as seen from its significance of (0.00 < 0.05). It can be stated that H1 Special Allocation Fund is affected by Capital Expenditure. In line with previous research (Revenue et al., 2015) which states that DAK has a significant influence on capital expenditure because DAK financing is free of charge and is special. This is supported by research (Rizal, 2017) that DAK is affected by capital expenditure.

The Profit Sharing Fund (DBH) is not affected by capital expenditure because the significance value is 0.5275 > 0.05. So H1 states that DBH is not affected by capital expenditure. In line with previous researchers (Lutpikah & Mahendra, 2020) Assuming DBH is not significantly affected by capital expenditure. The research also supports (Yuliantoni & Arza, 2021) stated that DBH was not significantly affected by capital expenditure.

### V. CONCLUSIONS

The conclusion results show that the tests carried out have met the requirements for test significance which include:

1. Economic growth is not significantly affected by capital expenditure.
2. Local revenues are not significantly affected by capital expenditure.
3. General allocation funds are not significantly affected by capital expenditures.
4. Special allocation funds significantly affect capital expenditure.
5. Profit sharing funds have no significant effect on capital expenditure.

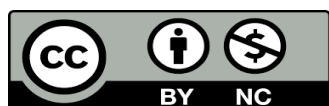
Apart from the partial tests above, classical assumptions are used to test data that is normally distributed and the data used meets the normality requirements, and there are no problems with multicollinearity, autocorrelation or heteroscedasticity. Therefore this test is suitable to be used. Next, the F test was carried out with a value of 0.000 which was below 0.05, stating that all independent variables were influenced by the dependent variable.

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## Perception of Stakeholders on Street Vending Businesses in Tanzania: A Case Study of Dodoma City



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**ABSTRACT:** The livelihood of street vendors has drawn attention not only among street vendors themselves but also among both state and non state actors locally and internationally. Unboubtedly, this attention is a result of unprecedented increasing level of unemployment which is highly pronounced in developing countries including Tanzania. This study confided in exploring perception of stakeholders on street vending businesses in Dodoma City around Central Business District in places like Nyerere square, Sabasaba, Majengo and One-way. The study employed both quantitative and qualitative techniques within which quantitative aspect employed probability sampling while qualitative aspect employed non probability sampling. Data were collected using different methods namely survey, interviews, and observations coupled with documentary review. The data from surveys were analyzed through computer software SPSS and descriptive statistics were used in analysing data. The SPSS used to analyse data and provide frequencies, percentages and numbers while the descriptive statistics used to analyse data qualitatively. A total of 384 respondents were involved in the study. Results indicate that majority of working population in the study area find their destination in SVB and thus illustrates street vendors have originated from different activities prior SVB. This imply that majority of street vendors belonging to young age are not engaging in farming because only 3% of street vendors in the study area said they have been engaging in farming activities prior street vending, the rest of respondents have been engaging in nonfarm activities. Some street vendors have been mobile, hawking around clock selling their products, at some point they decided to shift to a particular commercial site and occupy space. This is the case for 155 respondent's equivalent to 40%, when they were asked about their prior activity they said they were hawking in street before becoming stationed. The results in this study show that 166 respondents equivalent to 43% of the sample were school prior joining street vending business. In real life situation of high rate of unemployment it is highly likely to find youths considering street vending as viable option to earn income to sustain their livelihood. The limited chance to find formal employment after schooling is the breeding grounds for street vending businesses. When looking at pattern of business venture particularly among youth in the study area, one can find that proportion of youth have not been in agriculture prior SVBs on other hand, after schooling, youths are likely to join SVBs than joining farming activities. The major challenges faced street vendors were poor enforcement of the policies, lack of enough business space, inadequate number of license and permits, hostile legislations, plus inadequate licensing systems, Lack of supportive vending environment, lack of clarity in laws and policies, lack of relevant business skills and limited participation of the vendors in both policy and political decision-making process. The study recommended that there is a need for rational mainstreaming SVBs in policy, laws and by laws. Curbing the street vending vulnerability require halt of ad hoc and emergence-style of addressing street vendors' vulnerability. This study argues it is high time for street vendors be supported to establish strong organization for the purpose of effective advocacy and effective representation of street vendors without compromising urban land space use standards.

**KEYWORDS:** Street vendors, vulnerability. Policy, license, legislation, mainstreaming, participation, organization, Laws, technocrat, informal sector, formal sector

### BACKGROUND OF THE STUDY

Over the world people had been strategizing and adapt in diverse ways to make a living. Since time immemorial, humans have undertaken movements to different places in their quest to make a living. The search for alternative livelihoods has seen more people being engaged in the informal sector in especially many developing countries. This is facilitated according to Asiedu & Agyei-Mensah (2008) by increasing limited formal employment opportunities due partly to both global and national economic changes and increasing urbanization

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According to the International Labour Organization (ILO, 2015), around 2 billion people which is equivalent to more than 61% of the world's employed population, work in the informal sector. Street vending serves as a major source of employment and income for urban residents the world over, especially in developing countries (Chen, 2004; Donovan, 2008). Street-vendors are often the main income earner supporting large families of dependents, and street-vending allows children of the poor to continue in education and rural families to benefit from remittances (Skinner, 2008a; 2009 Lyons and Brown, 2010).

Street vending business is increasingly becoming a vital livelihood strategy for millions of urban dwellers in Sub-Saharan Africa owing to its significant contribution to vendors' livelihoods and contribution to governments' incomes (UN-HABITAT, 2014). Studies reveal that informal sector rates are considered the highest in Africa and sub-Saharan African countries in particular pointing that Zimbabwe, Tanzania and Nigeria informal sector were around 58.6 per cent in 1999, 56 per cent in 2004 and 53.7 per cent in 2007 (Buehn & Schneider, 2012; Dell'Anno, AnaMaria, & Balele, 2018; IMF, 2018). Particularly, Tanzania's informal sector economy has been estimated at 52%-61% of GDP in 2013-2015 (Buehn & Schneider, 2012; Dell'Anno, AnaMaria, & Balele, 2018; IMF, 2018). Operating from the streets, street vendors may work from permanent locations, or may be mobile, carrying their wares to customers at places of high pedestrian concentrations (Bhowmik, 2012). By their presence and activities, however, street vendors in different parts of the developing world have been in confrontation with city authorities or regulators over space for business, conditions of work, sanitation, and licensing (Skinner, 2008a).

As a result of the competing interests between street vendors and regulators, street vending has come to depend largely on a constant negotiation among vendors, buyers, and regulators (Recio & Gomez, 2013). Negotiations may be for public space, for economic opportunity, and for power, and may involve the general public, shop owners, and urban regulators. Among street vendors, regulators, pedestrians, and the general public, negotiations may occur regarding what can be considered an acceptable and unacceptable use of space, as well as what can be considered rights of the vendor to operate and earn a living from public spaces against the rights of the state to maintain public spaces (Horn, 2014).

Tanzania is considered among the countries with the biggest number of informal workers in Africa whereby the size of its informal economy has grown from 10% of GDP in 1960s, to 20% after the mid-1980s, 58.3% in 1999 and 2000, and around 52%-61% of GDP in 2013-2015 (Dell'Anno, AnaMaria & Balele, 2018). Specifically in Dar es Salaam, the number of street vendors was estimated at one million (1,000,000) in 2014, and the majority of vendors are said to be young people of around 15- 35 years of age (Mramba, 2015). They are engaged in selling a number of items, including kitchen utensils, fashion items, food items, electronics, and machine parts. One vendor may own or co-own more than one kind of business (Munishi & Casmir, 2019).

Street vending legalization in Tanzania has passed through a long evolutionary process. It started by a few licences being given to Asians during the colonial era. This was aimed at protecting the colonial businesses. Such a state lasted till 1980s (Lyon & Msoka, 2007; Steiler, 2018) and during that time vendors were illegal and regarded as loiterer. The situation changed during the economic crisis in the early 1980s when vendors' activities were allowed and were licensed with *Nguvu Kazi* licenses. However, the enactment of Business Licensing Act of 2003 and Finance Act, of 2004 changed the situation. After then, street vending was marked illegal and all businesses were required to be registered an activity that vendors could not afford (Mramba, 2015). Different policies, laws and by-laws created by different authorities have created a sense of instability in the vendors licensing process (McFarlane & Silver, 2017).

The government has made several initiatives to enhance the provision of licenses and permits to vendors. These include setting aside some designated places and constructing relevant infrastructures and market places for these vendors. (Munishi & Casmir, 2019). Despite the above efforts, issues of street vendors licensing and permits issuing which guarantee their legitimacy and access to space have been bitterly contested by stakeholders. This has led vendors to continue missing reliable business places and infrastructure. Most of them still depend on unauthorised government free spaces including road reserves, streets, bridges and fences around government premises. Subsequently, this situation subjects vendors to frequent and at times serious conflicts with the urban municipal authorities. Vendors still experience conflicts with municipal authorities especially when they undertake their businesses in unauthorised places around urban places (Racaud, S., Kago, J., & Owuor, S. 2018)

### STATEMENT OF THE PROBLEM

Licensing and permits issuing are considered among the key aspects for regulating informal trade in urban setting, given the sensitivity of operating business in urban areas as well as the limited number of business spaces available in cities (Horn, 2018; Steiler, 2018). In 2016 a decree was issued against the eviction of street vendors in urban settings, insisting urban authorities to allow vendors find different business sites in the urban open spaces. This was followed by the legalization of the street vendors' operations through business registration and provision of special IDs. Such IDs are provided by the Presidents' office to all street vendors all over the country through local administrative authorities.

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However, alternative business infrastructure created in urban areas and locations provided for the vendors are not conducive enough for vendors. On top of that, in some locations, vendors are still required to pay different kinds of unbearable fees for them to be legalized given that their business is small and unpredictable (Munishi & Casmir, 2019).

Vulnerability of street vendors is not limited to acquisition of business IDs. Street vendors face a number of challenges even when already permitted and licensed to trade. High vulnerability will decrease the ability of street vendors to preserve their survival ability (Roever & Skinner, 2016). Despite LGA efforts to accommodate street vendors, street vendors are still subjected to vulnerability. This study intends to uncover; perceptions of street vendors on SVBs, various risks facing street vendors and effectiveness of efforts by LGA to improve livelihood of street vendors in the study area.

### **LITERATURE REVIEW**

#### **Definitions of terms**

##### **Street vending**

Street vending, is defined as a global urban phenomenon as the type of in formalized labor forces that performs trading activities in urban settings. The term informal business activities was for the first time coined in 1970s whose understanding varied widely depending on which activities were regarded as informal. In Africa the informal sector accounts almost 60% of informal workers and street vendors have large share (Serrat, O. 2017). Street vending is a type of business that offers goods and services for sale to the public without having permanent built up structure or simply a non-criminal commercial activity that depend on access to public space (Msoka, 2007 & Mramba, 2015).

##### **Informal sector**

Informal sector is perceived as “one in which there were fewer barriers to entry and a heavy reliance on indigenous resources and family ownership; operations were small-scale and used labour-intensive and adaptive technologies; workers acquired skills outside the formal school system; and markets were unregulated and competitive”(ILO. (2006). Similarly, Portes et al. (1989) are of the view that, the informal sector basically consists of economic activities that use primarily illegal methods to produce legal products.

##### **Vulnerability**

According to Dercon (2005), the term ‘vulnerability’ actually has been used in a variety of related but different meanings in several studies that in general related to “a sense of insecurity, of potential harm people must feel wary of – something bad may happen and spell ruin.” One of the important informal economic activities of the urban poor is street vending that is also vulnerable in nature. Among other informal workers in urban areas, the street vendor in general is the poorest and economically vulnerable (Çargoklu and Eder 2006) and remains uncomfortably vulnerable not only as individual-economic agents but also as people (Dabir-Alai 2004).

### **THEORETICAL REVIEW**

#### **The Dualistic Economic Development Theory**

The Lewis(1954) dualistic theory of economic development emphasize that taking of the surplus of labour in agricultural production, and brings the labour forces in non-agricultural activities will have the spill over effects on economic development, and this is the source of the labour movement from rural areas to the urban areas. Lewis theory explains the emergence of business growth in urban centres which is attributed by economic growth which is attained by rapid accumulation in the non-agricultural sectors (industrial and service)(Roever & Skinner, 2016), which is facilitated by drawing surplus labour from agricultural sector. The theory was used in this study due to the fact that Tanzania is among poor countries characterized by unprecedented rural urban migration and a shift from farming activities carried out in rural areas to non farming activities like the case of street vending activity.

### **FINDINGS AND DISCUSSIONS**

#### **Respondents’ Characteristics**

##### **Age of Respondents**

Age of respondents was considered because of its implications in understanding of issues pertaining street vending business and participation in productive activities. The findings in this study show that majority of respondents belong to specific age group with adequate information about street vending business and are active participant in economic activities. Table 2 below illustrates an handsome number of street vendor belong to age groups which are aggressive enough to take to street for conducting street vending despite harsh business environment.



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### Sex of Respondents

Respondents were grouped into males and females. The essence of this sampling is to allow views of both males and females to be captured in this study. This study considered number of males and females be included in order to have a balance views regarding different aspects investigated. With respect to the findings in this study, 75% respondents in the sample are male whereas 25% are females as illustrated in the Table 2 below. This suggests the proportion of males street vendors are higher than the proportion of female street vendors. The findings collaborate with the common altitude and practices to find more number of working males than number of working females in real life situation. This is driven by the fact that males are more motivated to be financially autonomous, socially independent, and politically head of family than females.

### Marital status of Respondents

The findings in this study shows that an overwhelm number of street vendors are either married or still single. Table 2 below illustrates 196 respondents equivalent to 51% are married whereas 158 respondents equivalents to 41% are still single. In real life situation, people are highly motivated to participate in socio-economic activities and be able to rise income. The income is purposely for starting and supporting a family with necessities of life. Street vendors do earn income out of street vending business suggesting they can support themselves and family members with necessities of life.

### Education Level of Respondent

Street vendors' level of education is distributed in Standard VII, Ordinary level secondary education, Advance level education, vacation education and bachelor degree. The findings in this study shows that Street Vending Business (SVB) is a multidisciplinary business activity, and less restrictive in term of amount of initial capital to be injected, physical asset to be mobilized and level of education. Being multidisciplinary, street vendors constituted a range of education levels as shown in table 2 below.

**Table 1: Characteristics of respondents**

AGE	FREQUENCY	PERCENTAGE
16 – 20	20	05
21 – 25	110	29
26 – 30	203	53
31 – 35	51	13
<b>Total</b>	<b>384</b>	<b>100</b>

SEX	FREQUENCY	PERCENTAGE
Male	288	75
Female	96	25
<b>Total</b>	<b>384</b>	<b>100</b>

MARITAL STATUS	FREQUENCY	PERCENTAGE
Married	196	51
Divorced	10	03
Separated	20	05
Single	158	41
<b>Total</b>	<b>384</b>	<b>100</b>

LEVEL OF EDUCATION	FREQUENCY	PERCENTAGE
Standard vii	62	16
Ordinary level education	145	38
Advance level education	97	25
Vocational training	20	05
Bachelor degree	60	16
<b>Total</b>	<b>384</b>	<b>100</b>

**Source:** Research survey(2023)

## PERCEPTION OF RESPONDENTS

### Respondents' Nature of Undertakings Prior Street Vending

The findings in this study show that majority of working population in the study area find their destination in SVB. The table 4 below illustrates street vendors have originated from different activities prior SVB. The implications is that majority of street vendors belonging to young age are not engaging in farming because only 03% of street vendors in the study area said they

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have been engaging in farming activities prior street vending, the rest of respondents have been engaging in nonfarm activities. Some street vendors have been mobile, hawking around clock selling their products, at some point they decided to shift to a particular commercial site and occupy space. This is the case for 155 respondents equivalent to 40%, when they were asked about their prior activity they said they were hawking in street before becoming stationed. The results in this study show that 166 respondents equivalent to 43% of the sample were school prior joining street vending business. In real life situation of high rate of unemployment it is highly likely to find youths considering street vending as viable option to earn income to sustain their livelihood. The limited chance to find formal employment after schooling is the breeding grounds for street vending businesses. When looking at pattern of business venture particularly among youth in the study area, one can find that proportion of youth have not been in agriculture prior SVBs on other hand, after schooling, youths are likely to join SVBs than joining farming activities. The studies by Collier and Jones (2016) underscores the issue of mushrooming of SVBs with Rural-Urban migration suggesting street vendors in urban areas have originated from rural and their prior activities have been farming, others haven in school.

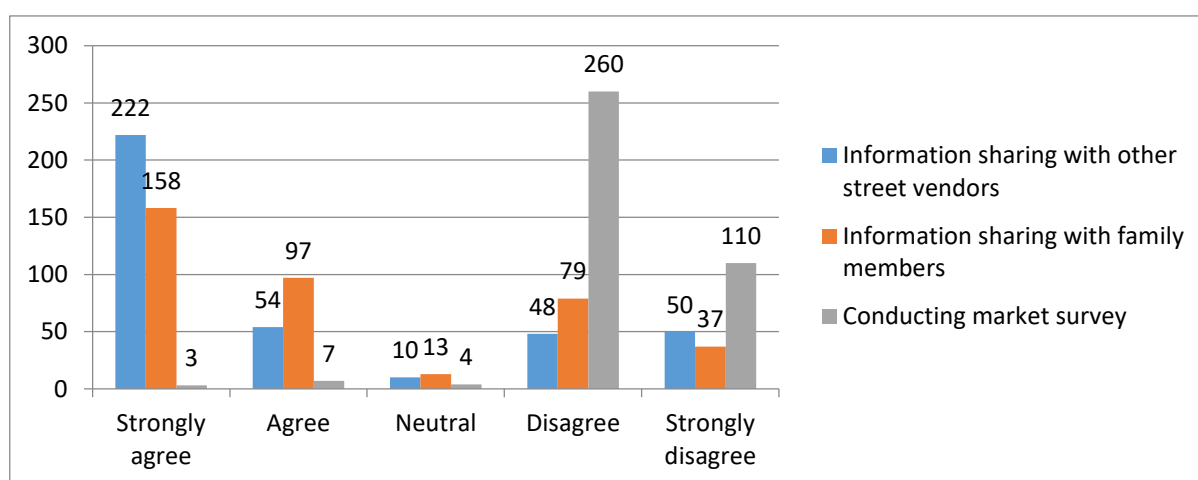
**Table 2: Respondents' nature of undertakings prior street vending**

TYPE OF UNDERTAKING	FREQUENCY	PERCENTAGE
Farming	8	03
Employed by other businessman	55	14
Hawking	155	40
Schooling	166	43
<b>TOTAL</b>	<b>50</b>	<b>100</b>

Source: Research survey(2023)

### FACILITATION PROCESS IN JOINING SVB

The study intended to investigate facilitation process through which street vendors join SVB. The aspect of facilitation considered was source of information and how they influenced venture into SVB. With respect to information acquired sharing with colleagues, who are also undertaking SVB, about business opportunities, 222 respondent's equivalent to 58% strongly agree that they join SBV under the influence of business colleagues, as illustrated in the Figure 1 below. This mode of sharing information about potential places with business opportunities is a prominent facilitation approach used by street vendors in the study area. Other studies have attempted to underscore the SVBs under the influence of urbanization. According to Haule and Chille (2018), In Dar es Salaam city and coast region, street vending expands at unprecedented rate. In these two regions, the more urbanized they become, the more street vendors joining SVBs. As information spread about small business opportunities in urban areas, SVBs also are inspired creating growth of informal sector in developing countries. According to the International Labour Organization (ILO), around 2 billion people which is equivalent to more than 61% of the world's employed population, work in the informal sector (ILO, 2015). Tanzania is considered among the countries with the biggest number of informal workers in Africa whereby the size of its informal economy has grown from 10% of GDP in 1960s, to 20% after the mid-1980s, 58.3% in 1999 and 2000, and around 52%-61% of GDP in 2013-2015 (Dell'Anno, AnaMaria&Balele, 2018).



**Figure 1: Facilitation Process in Joining SVB**

Source: Researcher survey(2023)



## Perception of Stakeholders on Street Vending Businesses in Tanzania: A Case Study of Dodoma City

### The Push Factors Contributing to Venturing SVB

The push factors represent various circumstances forcing street vendors to join SVB. The push factors are perceived solution to improve livelihood and survive. The findings in this study shows that an overwhelm majority of street vendors, of which 48%, claimed that high rate of unemployment is a reason behind they joined SVB. In some other cases street vendors view SVB as a means to complement the income source already being established, collaborating with the findings in this study where 12% of respondents in the sample argued that they have been motivated to join SVB to earn additional income to complement their existing income level, as illustrated in the Figure 2 below. In curbing high rate of unemployment in formal sectors, youths and unemployed may opt to either establishing formal business for self employment or undergo further training to acquire higher order skills which in turn would guarantee higher income. Base on these two options, complications may arise and discourage youths and unemployed from using these two options. On one side, establishing formal business for self employment is accompanied by cost such as; rent, trade license, user fees, and government tax. With all these lists of costs, youths and unemployed may not be able to afford. In second thought, if the option to improve livelihood is to undergo training, high training fees may discourage youths and unemployed to attend further training courses to acquire higher order skills. The findings in this study shows that 20% of youths and unemployed, who are street vendors, are being pushed from establishing formal business due to high investment costs in formal business whereas 20% of them said high costs in training in pushing them from joining training institutions to acquire higher order skills. Currently 60% of Tanzanian population reside in rural areas with principal activity being agriculture. While in farming youth perception is that they are not capturing financial gain by remaining in agriculture. According to IFAD (2018), an increasing rates of rural-to-urban migration are creating a rhetoric of concern that by moving to urban environments, youth are abandoning the agricultural sector. Expressions of lack of interest include citing the “dirty” or laborious nature of farming, coupled with concerns over opportunities for income generation and aspirations for SVBs in urban areas.

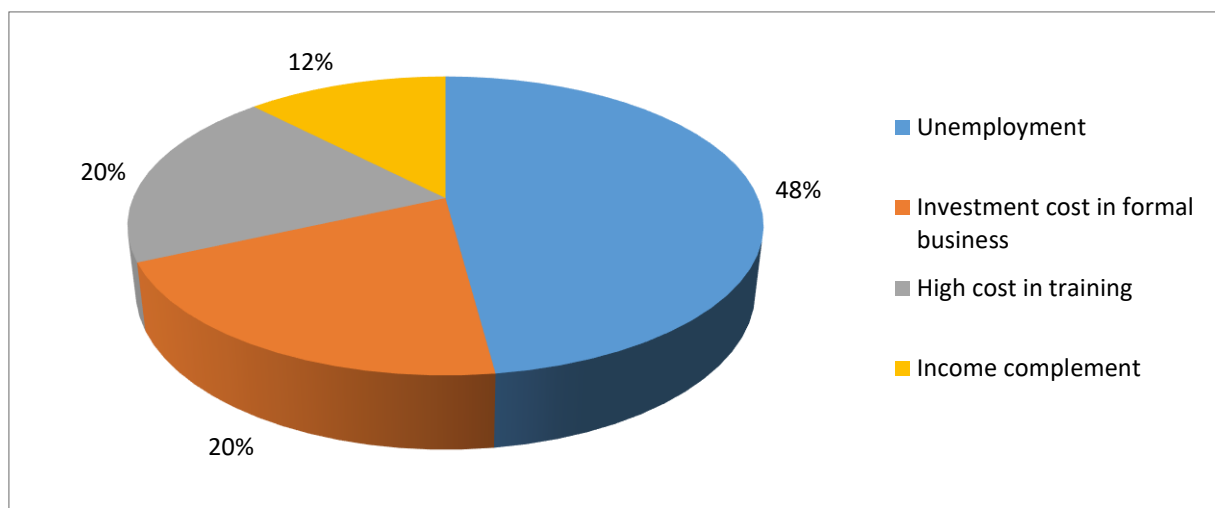


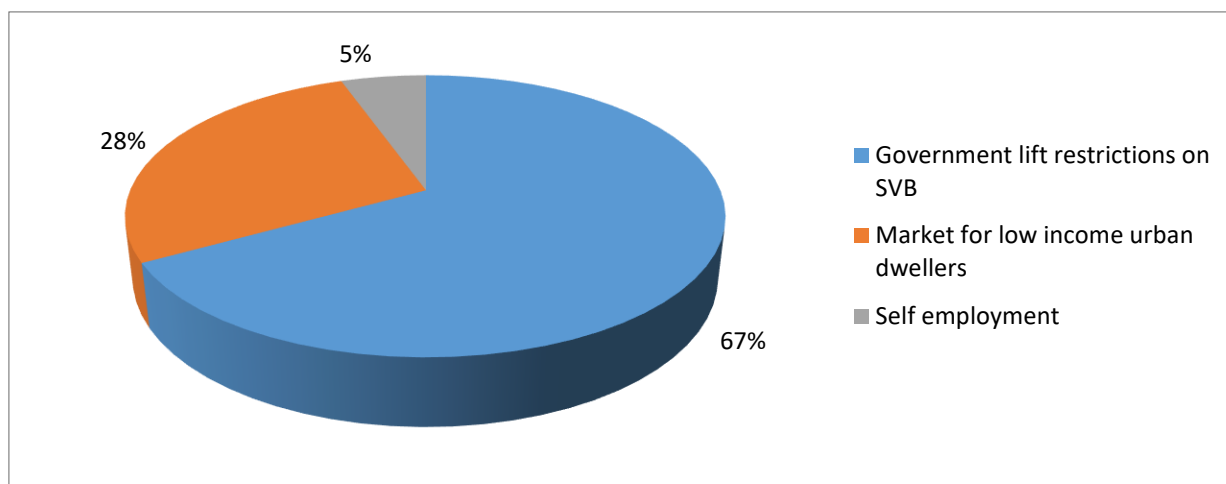
Figure 2: The Push Factors Contributing to Venturing SVB

Source: Researcher survey (2023)

### The Pull Factors Contributing to Venturing SVB

The pull factors are the pre determine conditions in venturing SVB. The pull factors dictate the rate in which street vendors are venturing SVB. The figure 3 below illustrates a range of pull factors which are responsible for making street vendors join SVB. The findings in this study show that government lifting of SVB is a prominent pull factor where 67% of street vendors in the sample said they joined SVB when the government reduced restrictions in doing SVB. Business environment in term of cost of doing business is highly considered when one intends to establish a business venture. As government imposes less duties to those who establish businesses the more number of businesses are established simply because profit margin is increasing. Among street vendors in the study area, duties such as; service levy, government tax, rent, which were duties to street vendors, are no longer imposed instead street vendors are imposed with possession of street vendors Identity Card (ID) costing 20,000/= annually. An increasing number of street vendors in the study area is said to be influenced by government reduction of restrictions upon SVB.

## Perception of Stakeholders on Street Vending Businesses in Tanzania: A Case Study of Dodoma City



**Figure 3: The Pull Factors Contributing to SVB**

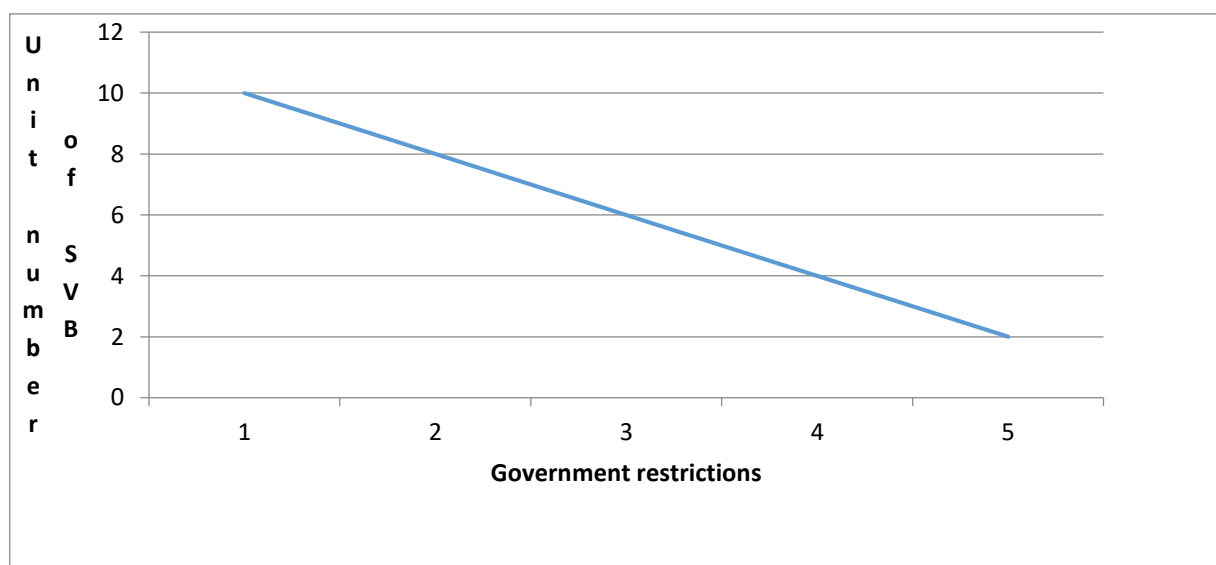
Source: Researcher survey (2023)

### Effects of Reducing Government Restrictions on SVB

During Focus Group Discussion (FGD) the findings in this study show that the rate of business venture in SVB is influenced by government restrictions. The figure... below is an illustration of the correlation between reduction of government restrictions and unit number of SVB. Whereas government restrictions to SVB are reduced, the unit number of SVB is increasing. This phenomenon is governed by the rule which state Number of government restrictions to business is inversely proportional to unit number of SVB. This rule was acknowledged by one of the key informant during FGD by saying;

‘In recent years SVB have been conducted under tension between vendors and LGAs simply because the two sides differ in goals. While LGAs goal is to uphold use of space as planned, the goal of street vendors is daily bread winning by using spaces not meant for SVB. When the government reduced restrictions including removal of trade license and VAT, there has been more and more influx of SVB in spaces not legally recognized by authority and law enforcement agencies’

Previous studies in peru by Mitullah (2003). Donovan, 2008 and Steel (2012) reported that street vendors commit unfair completions with traders in formal businesses.



**Figure 4: Illustration of the Correlation Between Lifting Government Restriction and Unit Number of SVB**

Source: Researcher survey (2023)

## Perception of Stakeholders on Street Vending Businesses in Tanzania: A Case Study of Dodoma City

### SVB and Livelihood Street Vendors

The study investigated impact of SVB on livelihood of street vendors and various parameters were measured and the results illustrated in the table 5 below. The findings in this study reports prevalence of some parameters, of impact on livelihood, is higher than others as illustrated in the table 3 below. The results further suggests that SVB has more strength in self employment creation, income generation and ability to support family members than the contribution of SVBs towards capital formation and establishment of higher business standards like formal business investment which are too demanding. In real life situation, street vendors may get stuck in SVBs unless an extra ordinary effort is made to support capital formation ultimately allowing respective street vendors establish formal businesses. This is the case partly due to increasing number of street vendors, stiff competition causing declining market share and so income of street vendors. On the other side, failure to adopt innovations to keep up with competitions.

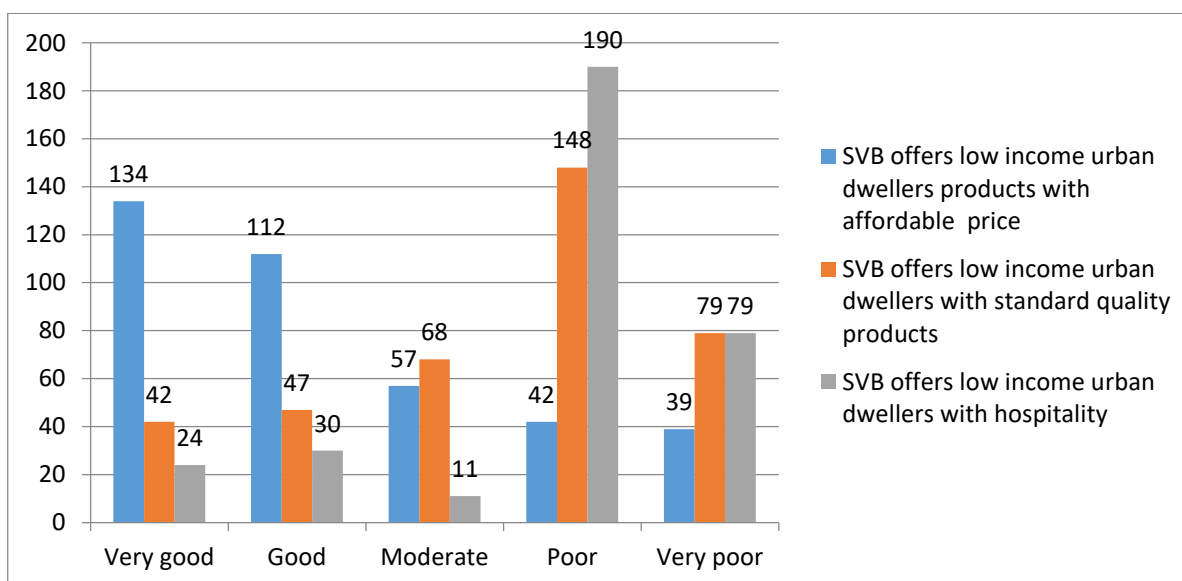
**Table 5: SVB and Livelihood of Street Vendors**

Livelihood improvement	Frequency
Source of income and support family	614
Source of income	384
Income gained is enough to support capital formation	29
Income gained is enough to support formal business standards	35

Source: Researcher survey(2023)

### SVB in Enhancing Public Welfare

SVB target population constitutes urban dwellers with low income. Through visiting places with high concentration of SVBs around the study area it was observed that selling and buying activities are taking places daily basis. In places like Majengo, Oneway, Sabasaba, and Nyerere square a lot of interactions are taking places. In these places customers are buying electronic products like earphone, radios, mobile phones, mobile phone chargers, USB cables, clothes, shoes, vegetables, fruits etc. With this kind of interactions, street vendors financial gains are realize simply because the street vendors earn income in this way. However, the findings in this study show that SVBs is taking place in congestion and in some locations hostile environment. Respondents were asked to rate the degree in which SVBs do consider the public welfare, 190 respondents equivalents to 49% said SVBs is poor in offering their customers with hospitality whereas 79 respondents equivalents to 21% said SVBs is very poor in offering their customers with hospitality. However, 134 respondents equivalents to 35% of the sample size, said SVBs are very good in offering their customers with affordable price of products, as illustrated in Figure 5 below. This suggests that SVBs' customers are motivated by low price than any other factors like hospitality and quality standards of products which are sold in SVBs. In specific terms, SVBs do not comply with hygienic standards. When viewing public welfare in security perspective, street vendors seem stand in position of ensuring agents of fighting against crime in urban areas as it was reported by Anjaria, (2006) in Mumbai and Skinner, (2008) in South Africa, street vendors serve and act as deterrent of various forms of crimes on city streets.



**Figure 5: SVB in Enhancing Public Welfare**

Source: Researcher survey (2023)

# Perception of Stakeholders on Street Vending Businesses in Tanzania: A Case Study of Dodoma City

## STUDY METHODOLOGY

### Research Design

This study used descriptive and cross-sectional design and relied on a mixed methods methodology. A mixed methods approach was used since the utilisation of quantitative and qualitative techniques was possible in the collection and analysis of data in order to corroborate findings. The assumptions of the mixed methods approach is based on the combination of quantitative and qualitative approaches towards providing a complete understanding of a research problem (Burns and Grove 2003).

According to Kothari (2004) cross sectional design is a kind of research design that is undertaken for a particular phenomenon at a particular time. Creswell (2013) highlights that cross sectional design has the advantage of measuring current attitudes or practices and provides information in a short amount of time such as the time required for administering and collecting information. The study used case study design to achieve its objectives. This design was preferred because it involves detailed, holistic investigation and can utilize a range of different measurement techniques, i.e. the case study design is not limited to any methodological tool and data can be collected over a period of time relatively to a certain context (Tumaini, 2010). The design was also preferred because it saved time and money

### Quantitative Research Design

In descriptive research design, the major emphasis is on determining the frequency with which something occurs or the extent to which two variables vary. This design is helpful in producing a broad range of issues involved (Creswell, 2013). Apart from that, it is flexible in data collection and it saves both time and cost (Kothari, 2004). Furthermore, descriptive design involves multiple sources of evidence (Saunders et al., 2007).

Quantitative method does not consume a lot of time, the method is not costly and lastly, it allowed the researcher measure and analyze the dependent variable (purchase process stages) and the independent variable (branding) of the study (Saunders et al., 2007).

### Qualitative Research Design

Study uses qualitative methods to explore the insights into the experiences of their circumstances and lived worlds as noted by Gatrell & Elliot (2009); the qualitative method provided a platform for the soliciting of a wide range of information which was not known to the researcher hitherto the research.

Qualitative method of interviewing is ideal when it comes to flexibility and teasing out very sensitive information on how street vendors are organized with reference to their opinions, feelings, and views (Davis & Dwyer 2007; Babbie 2005; see also Saks & Allsop 2007). That is, it offers the researcher the freedom to modify his or her methods in response to the appropriateness of the data because of the flexible and reflexive properties that the qualitative methods possess.

### Sampling Design

Sampling design entails all procedures and due process which were pursued to enable selection of a sample. Sampling design in this study covers aspects like; sampling techniques, sample size and sample frame

### Study Population

Population means a group of items that samples are drawn from. The targeted population for this study was respondents who are street vendors around Dodoma city in locations such as Majengo, Nyerere square, Oneway and Sabasaba. These areas constitute what is termed as Central Business District (CBD) where Street vendors are situated (Kothari, 2005)

### Sampling Technique

This study employed both probability and non probability sampling. This study applied probability sampling in two stages namely cluster sampling and simple random sampling. Cluster sampling was used to select street vendors' which are; Majengo, Oneway, Nyerere square and Sabasaba. After identifying these locations the sample was selected using simple random sampling. Since the exact population size is unknown, this study employed Cochran formula to come up with sample size 384. The Cochran formula allows you to calculate an ideal sample size given a desired level of precision, desired confidence level, and the estimated proportion of the attribute present in the population. A sample is random if the method for obtaining the sample meets the criterion of randomness (each element having an equal chance at each draw). According to Larry *et al.*, (2011) if the goal is to generalize from specific sample to a population, random sampling methods are preferred because they produce representative samples.

The Cochran formula is:

$$n = \frac{z^2 \times p \times (1 - p)}{e^2}$$

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Where:

- e is the desired level of precision (i.e. the margin of error),
- p is the (estimated) proportion of the population which has the attribute in question,
- q is 1 – p.
- The z-value is found in a Z table.

### Determination of Sample Size

Since population size of street vendors in the study area is unknown, this study resorted to the Cochran formula to determine sample size. The confidence level chosen was 95% corresponding to Z value of 1.96, level of precision “e” chosen was 5% (0.05), under marginal error of 0.5

By plugging the values in the formula, sample size was obtained as below;

$$\frac{((1.96)^2 (0.5) (0.5))}{(0.05)^2} = 384$$

Therefore, randomly selected sample of 384, gave room for achieving confidence level which was desired in this study.

In non probability sampling, purposive sampling was employed to select key informants who are from decision making organs like, street vendors’ leaders, official from LGA, member from Tanzania Chamber of Commerce, member from Tanzania Private Sector Forum (TPSF). O’Leary argued that key informants are individuals with either detailed information or knowledge related to the researchers’ topic and they are free to share the information with a researcher (2014:191). Also, they are considered to be one of the primary means of getting data (O’Leary 2014:192).

### Sample Frame

A sample frame entails entire source materials from which data was collected (O’Leary 2014:184). It included locations selected, both primary and secondary respondents.

**Table 1: Illustrating Sample Frame**

S/N	Category	Size
01	Street vendors	377
02	Locations( Majengo, Oneway, Sabasaba&Nyerere square)	04
03	LGA official	01
04	TPSF official	01
05	Tanzania Chamber of Commerce official	01
	<b>Total</b>	<b>384</b>

Source: Research survey (2023)

## DATA COLLECTION DESIGN

### Sources of Data

There are two sources of data, namely; primary data and secondary data. Primary data are the first hand information which is collected by a researcher directly from the respondents through interview, observation and survey methods (Kothari, 2004). Secondary data are second hand information collected by researchers through reading various written documents related with the problem under the study (Lincoln &Guba, 2002). Both primary and secondary data sources were used in this study. According to Kothari, (2004) primary data are data collected afresh and for the first time. In this study questionnaire, interviews and observations were used. Secondary data are those which have already been collected by someone else and which have already been passed through the statistical processes. Collection of secondary data is termed as documentary review. Documentary review refers to the analysis of documents that contain information about the phenomenon we wish to study (Milanzi, 2009). This technique assisted the researcher in checking the reliability of data which will be collected by primary sources of data. It included the review of journals and reports, internet and other sources that responded to the acquisition of relevant data.

### Data Collection Methods

Four methods of data collection used in this research included physical observation with field visiting, literature review, in depth interviews and questionnaires distribution. The triangulation method was used to get information from various data sources for the purpose of improving internal and external validity of the research. The accuracy of information provided in questionnaires was verified through cross checking with verbal interview transcripts and observations notes made during field visit.

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## Survey Method

Survey method was used to collect information from respondents who are widely spread over different locations in the study area. Structured questions known as questionnaire were prepared. According to (Kothari, 2009) questionnaire is an instrument which consists of a number of questions printed in definite order. Furthermore, questionnaires involve a set of questions to be used to collect information from the respondents on their attitudes, feelings or reactions to the problem under study (Kothari, 2004). The questionnaire which used for this study was adopted from previous studies (Mukantwali et al., 2012; Eshetu and Zekele; 2008). A survey is a method of gathering data using questions which are given to a series of individuals depending on their characteristics, attitude, with the aim of getting their views (O'Leary 2014:202). Questionnaire is considered to give a chance of covering large number of respondents and it gives a flexibility of the respondent to answer the question at the anytime they feel (O'Leary 2014:204).

Basing on nature this study, use of questionnaire created room for various perspectives from street vendors and key informants to be captured and to come up with an understanding about perception, vulnerability and strategies which are in place to improve livelihood of street vendors. Hence, use of combination of methods is the best way that can provide comparison. In addition, it can stand for a large population and be able to generalize the result; it also provides for confidentiality and anonymity. Finally, it can generate qualitative data through the formulation of open-ended questions (O'Leary 2014:204). Using questionnaire, a five-point likert scoring to respond to specific objectives in this study. A five point Likert scoring was used to measure the respondents' views on hypothesized perception, vulnerability of street vendors and strategies used to improve livelihood of street vendors: (strongly agree; Agree; Neutral; Disagree and Strongly disagree).

## Interview Method

The primary data for the study was qualitative data which was gathered through the use of interviews and also observations that were done with regards to the activities of the street vendors. An interview "is an inter-change of views between two persons conversing about a theme of mutual interest" (Kvale&Brinkmann 2009). It is a method of data gathering through some form of questioning and listening (Babbie 2005). Dunn (2000) notes that, interviews entails some form of verbal exchanges with the researcher trying to elicit information, as he puts it, from another person. In view of this, the interview offers the room for the researcher to explore with the informant on varying issues which are confidential and sensitive such as the relocation exercise in Accra. Its advantages lie in the fact that it is very flexible as it allows in-depth questions to be asked so as to get insightful understanding of a particular subject matter thereby giving me much flexibility and scope in my analyses.

Interview involves collection of information through a live, oral or verbal communication between the researchers and the respondents. The study employed both structured interviews which aim to gather information from a large number of people and open ended interviews which are for more in depth information (Punch, 2005). The reason being that, the researcher not only wanted to gather specific information such as youth education and capacity of agriculture but also want to gain a greater understanding on youth involvement in agricultural activities. Interview technique was preferred due to the fact that it is designed and conducted in a professional manner, so it was a useful way of exchanging views, exploring perception and therefore seeking opinions from the respondents on various issues concerning youth's participation in agricultural activities.

According to O'Leary (2014) the interview is a method of data collection whereby a researcher is looking for open-ended information aligning to the number of questions, topic areas or themes. An in-depth interview is a one to one method of gathering data whereby an inter-viewer and interviewee meet together and discuss on the particular matter in deep. The reason for using in-depth interviews to acquire deep understanding of the matter through semi-structured interview guide. Interview guide consists of a number of questions which interviewers use like "a memory aide" when doing an interview (Hennink et al. 2010). The interview can begin with an identified questioning plan but can jump to have a natural flow of discussion (O'Leary 2014:218). The advantage of this method allows gathering of planned and unplanned data that appear to be attractive (O'Leary 2014:218). All the data obtained via interview were recorded by a researcher in form of note-taking.

## Observation

In social science research, researchers also adopt a host of methods so as to enrich their comprehension of a research question. This is known as triangulation (drawn from surveying) where researchers rely upon diverse ideas and sources in their studies (Clifford & Valentine 2003)

## Data Analysis, Presentation and Interpretation

The computer software SPSS and descriptive statistics were used in analysing data. The SPSS used to analyse data and provide frequencies, percentages and numbers while the descriptive statistics used to analyse data qualitatively. Therefore, the study used both quantitative and qualitative data analysis methods in an attempt to respond to the posed research questions. This is due to



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the fact that some data were presented in terms of numbers and others in terms of descriptions (words). After analysis, the research findings were put into categories based on the research objectives and presented through the use of tables, pie charts, figures and graphs

### Ethical Issues

Ethics is a system of moral values concerned with the degree to which research procedures adhere to professional, legal and social obligations (Saunders et al., 2007). Creswell (2013) emphasizes that, ethical issues fall into informed consent procedures; deception or covert activities; confidentiality toward participants, sponsors and colleagues; benefits of the researcher to participants over risks; and participants' requests that go beyond social norms should be observed and respected. Participants should grant permission prior to their participation in any study (Kothari, 2009)

In this study, ethical issues were considered by obtaining permission from the relevant authorities. Each respondent was informed about the purpose, significance and benefit of the study. In order to maintain confidentiality and anonymity, the names of the respondents were not written on the questionnaires. In line with this, the researcher respected the principle of self-determination which meant that each respondent had the right to decide voluntarily whether or not to participate in the research

### Reliability and Validity of Study

Validity and reliability are the two important control objects in research design (Yin, 2003; Greener, 2008). The aspects of validity and reliability are also important in this study. Hence, it is the crucial need for the researcher's findings to be valid and reliable. Validity and reliability are two factors which any researcher who looks for a good quality research should consider while designing a study, analyzing and presenting the results.

#### Validity

Validity is the ability of an instrument to measure what it is designed to measure (Kumar, 2011). Babbie (1989) writes that validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration.

In this study, validity was achieved in various ways as suggested by Kothari (2004). Firstly, through careful formulation of questions and pre-testing of questionnaires to make sure that the questions are clear and possible problems are identified earlier so as to find solutions on how to overcome them easily. Secondly, the collected data were edited so as to identify and eliminate errors and omission done during data recording. The reason for this was to attain the completeness, accuracy and uniformity.

#### Reliability

Reliability of the study is the extent to which other researchers arrive at similar results if they undertake the study with the same case using exactly the same procedures as the first researcher (Kothari, 2004; Creswell, 2013). In this study, reliability was tested by using Cronbach's coefficient alpha, which is a scientific test to measure the reliability of the data (Saunders et al., 2007). The reliability test shows that the data for this study are reliable for the respondents who participated in the survey, with a reliability coefficient of Cronbach's Alpha 0.774. This coefficient of alpha suggests that the items have relatively high consistency. It is noted that a reliability coefficient of 0.70 or higher is considered acceptable in most social science research situations.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The findings in this study is presented with respect to perception of street vendors on SVBs. This study reveals that street vendors prior activities comprise mainly doing SBVs from other urban areas others have been in school. Street vendors have come to join SVBs by sharing information with fellow street vendors who are already in SVBs. There are a number of push factors but the prominent one being high rate of unemployment. The push factors are mainly complemented by a number of pull factors. This study concluded that reduced government restrictions on SVBs have highest prevalence than other pull factors. In this study, it is reported that SVBs is a source of income in which street vendors rely upon to support their families. Street vendors level of awareness, on business acts guiding business permit, is low suggesting poor compliance when it comes to starting business by following due process and standard procedures. Street vendors in the study area have acquired business skill and knowledge mainly through experience-based learning. On the other hand, the results of this study shows that LGA's efforts to support street vendors towards improving their livelihood concludes that neither financial nor non-financial services is delivered to street vendors in an effective manner secondly LGA is under pressure to accommodate SVBs under circumstance of disorganized SVBs in term of over congestion of street vendors without premises. In general LGAs' advocacy of street vendors is limited by nature, creating vulnerability to this fraction of business communities even more.



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### Recommendations

#### Legal Defense

Policy and legal framework need to be in place as the basis for enforcement of SVBs. This would help address the vacuum created by lack of principles and regulation on where and how SVBs are to be conducted. Policy and laws are needed to provide a guide on obligation of regulators and law enforcement agencies towards protection and advocacy OF SVBs. Relevant LGA officials can take part in process of SVB policy formulation in collaboration with ministry of constitutional and law.

#### Establishment of Premises

To safeguard uniform standards of SVBs infrastructure design in a manner which sound well upgraded. SVBs hubs can be created to avoid over congestion of street vendors in a single hub. Those hubs can be selected around CBD in Dodoma city. Making SVBs hub be around CBD will motivate street vendors because of accessibility by urban low income dwellers. Achieving this standard would require LGA in Dodoma city to conduct land space need assessment to determine size of land space needed to accommodate street vendors in Dodoma city. Relevant government regulators can be involved in designing premises for SVBs.

#### Establishment of SVBs Strong Organization

Strong street vendors' organization implies leadership of street vendors well equipped with leadership ethics whereby daily businesses of leaders are guided by the constitution. Strong street vendors' organization implies street vendors' interests are well defended meanwhile street vendors leadership act as a bridge between LGA and street vendors.

#### Skill Upgrading

Under circumstance street vendors have not acquired business knowledge and skill through attending training on business education in college of business education, street vendors skill upgrading is needed for the purpose of equipping street vendors with basic knowledge on how to mobilize and manage resources, inventory management, customer care as well as establishment of network with relevant actors for the purpose of securing support both financial and non-financial.

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## Effectiveness of QRIS on Motor Vehicle Tax Payment Compliance through the Technology Acceptance Model (TAM) in West Nusa Tenggara



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**ABSTRACT:** E-money transactions will increasingly be a substitute for cash. In Indonesia, QRIS is a popular digital payment system. One way to pay vehicle tax is through QRIS. Adoption of the use of technology as a government step in the resolution of tax arrears. The aim of this research is to identify the role of perceived convenience, perceived utility, and perceived credibility of QRIS in paying vehicle tax in West Nusa Tenggara. The research approach is quantitative, using the SEM-PLS method of analysis with SmartPLS 4.0 software. The population of this research is the tax payers who are using the QRIS in West Nusa Tenggara. The purposeful sampling method was used with 52 samples. The research results show that perceived convenience is negative and insignificant when paying vehicle tax. Then, the perceived utility and the perceived credibility show a positive and significant value for compliance with the payment of motor vehicle tax. This research finds that the taxpayers in West Nusa Tenggara who pay the vehicle tax using the QRIS payment method are influenced by the perceived utility and credibility.

**KEYWORDS:** QRIS, Digital Payments, Taxpayers, PKB Payment Compliance, Technology Acceptance Model

### I. INTRODUCTION

This document is a template. An electronic copy can be downloaded from the conference website. For questions on paper guidelines, please contact the conference publications committee as indicated on the conference website. Information about final paper submission is available from the conference website. The development and sophistication of technology have brought comfort and convenience to the lives of human beings. The Internet and gadgets are some of the results of technological sophistication. This has not escaped the lives of the world's population, including Indonesia. According to the We Are Social report (Biro Humas Kementerian Kominfo RI, 2023; Rizaty, 2023), in January 2023, 77% of Indonesia's population, or approximately 212.9 million people, had used the internet. The average internet user in Indonesia spends seven hours and 42 minutes per day. 98.3% of internet users use gadgets (Rizaty, 2023). The use of gadgets as a communication tool is considered to be easier, more complete, and in line with high mobility needs (Fitriana et al., 2021; Rini et al., 2021).

The features and services available today are certainly not far from the usability of gadgets. Like the innovations in technology, information and communication in the financial system are also becoming more dynamic, more complex, and more interconnected (Sholihah & Nurhapsari, 2023). It is reported by Bank Indonesia that in 2022, electronic money transactions will increase by Rp.399.6 trillion. Furthermore, for the same year, the value of digital banking transactions will increase by 28.72 percent to Rp.52,545.8trillion by 2022 (Indonesia.Go.Id, 2023). The increasing electronic financial system will shift the use of cash as it is considered more effective, practical, and economical (Tarantang et al., 2019). Currently, the popular digital payment method launched by Bank Indonesia is QRIS (Quick Response Indonesian Standard), together with the Indonesian Payment System Association (ASPI).

QRIS (Quick Response Indonesian Standard) is a QR code standard that was developed with the aim of making transactions easier, faster, more modern, and more secure, promoting the efficiency of the government, and accelerating digital financial inclusion. The source of funds used for transactions is not only through debit or credit cards but can also use server-based storage media or digital wallets such as Dana, LinkAja, GoPay, OVO, Dompotku, and other similar applications. The QR code used by QRIS is intended for all types of digital payment transactions, both bank and non-bank, that are licensed by BI in all shops, stalls, merchants, parking, donating, tourist tickets, electricity and even paying taxes (Bank Indonesia, 2022; O. B. Saputri, 2020).

## **Effectiveness of QRIS on Motor Vehicle Tax Payment Compliance through the Technology Acceptance Model (TAM) in West Nusa Tenggara**

West Nusa Tenggara (NTB) Province is one of the regions that have started to use QRIS. As of June 2023, the total number of transactions has reached 2,880,089 times with transactions amounting to Rp.293,823 billion (Suara NTB, 2023b). Since June 2022, vehicle tax payments in NTB can be made through QRIS and e-Samsat Delivery application. The number of taxpayers in PKB who use QRIS in 2022 will reach 6,181 with a total amount of Rp.6.84 billion and as of September 2023, it has reached 23,613 taxpayers with a total income of 26.1 billion (Badan Pengelolaan Pendapatan Daerah NTB, 2023). The tax payment through QRIS is only accepted for small amounts, namely for the re-registration service. The E-Samsat delivery application also cannot receive renewal and mutation tax services. The payments using the QRIS service reach only 10 million (Suara NTB, 2023a).

Sources of revenue or income at the regional level must continue to be explored and managed well so that they can be of benefit to the society as a whole. Tax collection policies based on regional regulations are contained in Law No. 28 of 2009 on Regional Taxes and Fees. Use of QRIS as a channel to pay regional taxes and duties increases regional revenues. The use of QRIS as a channel for paying regional taxes and levies by regional governments (Pemda) is increasing. In the first semester of 2022, 336 regional governments are using QRIS according to the IETPD (Regional Government Transaction Electronic Implementation Index) survey (Srinadi, 2023).

About 70% of local government revenue (PAD) comes from motor vehicle tax, according to the NTB Samsat Advisory Team. However, the level of tax compliance among the taxpayers in the NTB society is still low. Therefore, the NTB Government decided to innovate by using QRIS to help resolve tax arrears and maximize local revenue. The availability of QRIS for tax payment transactions provides convenience in terms of service, saves time and cost without the need for long queues at Samsat due to complicated and secure administration. The electronic payment using this device will provide transparency in the financial management as it will be registered with the Bank of Indonesia.

This research aims to determine the compliance of taxpayers in paying motor vehicle tax (PKB) in West Nusa Tenggara by using the QRIS system, which is easier, more useful and has credibility. This research is expected to provide a common understanding of the low level of taxpayer compliance and the innovation provided to pursue the revenue target of PKB in increasing its contribution to Regional Original Income (PAD).

## **II. LITERATURE REVIEW**

### **A. Compliance of the Taxpayer**

Compliance means a form of human behavior that is obedient, submissive, and subject to a rule or order and discipline towards a procedure. Compliance is a behavior that is under the influence of external and internal factors (Rosa, 2018). Then, according to Fadillah et al., (2021) compliance is an attitude that follows the standards, specifications, and legal regulations that are issued by the authorized institutions or organizations. Taxpayers are citizens, both individuals and institutions. They have the obligation to make payments (Pebrina & Hidayatulloh, 2020). Meanwhile, tax compliance is the taxpayer's compliance with the existing tax regulations for the collection of taxes (Susyanti & Anwar, 2020). Based on the Minister of Finance Decree No. 544/KMK.04/2000, it is stated that "tax compliance is the taxpayer's actions in fulfilling tax obligations in accordance with the provisions of laws and tax-implementing regulations applicable in a country."

### **B. Vehicle tax**

According to Law No. 28 of 2007, the tax is a compulsory contribution to the state, which can be enforced. Taxes collected by the government are re-invested in the needs of the state for the benefit of the citizens of the country. Taxes serve as a source of financing for the development of the state. Taxes are a major contributor to state revenue as per the state revenue and expenditure budget (APBN) (Pebrina & Hidayatulloh, 2020). Motor vehicle tax according to the Law of the Republic of Indonesia No. 28 of 2009 Article 1 Number 12 and 13, namely the tax on the ownership and/or control of motor vehicles (Bapenda Jabar, 2023). The tax collection involves three government agencies, namely the Regional Revenue Agency, the Regional Police of the Republic of Indonesia, and PT. (Persero) Jasa Raharja Loss Insurance (Bapenda Jabar, 2023; Ditjen Bina Keuangan Daerah, 2021).

### **C. Technology Acceptance Model**

The Technology Acceptance Model (TAM) was first proposed by Davis in 1989. It's a model for understanding and analyzing the factors that influence whether the use of technology is accepted or not. The TAM is used in the study of an individual's behavioral intentions in the use of a technology (Mea et al., 2017). There will be interest in using the technology if the technology system is perceived to be useful, easy to use and credible. According to Davis, perceptions of ease and utility have an impact on attitudes toward technology adoption. Agustina & Musmini (2022) also argue that credibility is related to the TAM concept.

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## D. Convenience Perception

Technological developments make it easier for people in aspects of life that can fulfill their daily needs and activities (Nadia & Wiryawan, 2022; Sholihah & Nurhapsari, 2023). If a technology is easy to use, people will use it more often and may experience increased usage (Ningsih et al., 2021; C. N. Saputri & Rivai, 2022). This perception is also the case for taxpayers who have QRIS as part of their payment system. QRIS is known for its ease of use, lack of hassles, and perceived usability (Sholihah & Nurhapsari, 2023).

QRIS is one of the innovations that have been implemented by the government for the simplification of the motor vehicle tax payment process. This started with the payment of car tax in cash. This can be said to be quite cumbersome and time-consuming. The taxpayers don't have to bother with change money, and the officials don't have to bother with preparing change money (Diskominfo Kaltara, 2023). Meanwhile, in NTB, there is an application for e-Samsat delivery via QRIS payments, which makes it easier for people to pay their taxes online without having to come to the Samsat office (Subki, 2023). This is really helpful to the taxpayers in the payment of PKB. Therefore, it is not surprising that people are now starting to use the QRIS for the payment of the motor vehicle tax (PKB).

H1: The perceived ease of using QRIS influences compliance with PKB payments.

## E. Perceived Utility

The benefits of the use of e-payment technology will have an impact on the perception of users. If a technology is useful and beneficial to users, then the technology will be used more extensively by society (Ningsih et al., 2021; Sholihah & Nurhapsari, 2023). Then there is the perceived benefit of the use of electronic payments as a program to speed up the completion of work (Rahmawati & Murtanto, 2023). Similarly, the use of QRIS makes transactions easier, more effective, more practical, faster, and, of course, more beneficial to the user (Erwinsyah et al., 2023). This perception is the reason why people use QRIS for PKB payments. Not only that, according to Yulianto (2021), the use of QRIS is a solution for people to pay taxes in a more efficient and optimal way and supports the cashless payment movement.

H2: Perceived utility of QRIS influences PKB payment compliance.

## F. Perceived Credibility

Credibility is the quality, capability, and strength of the creation of trust (Kemenkeu, 2021). Credibility is one of the reasons why people use technology. The perception of credibility, which indicates the privacy and security of information, has the potential to increase the use of technology (Agustina & Musmini, 2022). In order to assess the level of user trust in a technology, credibility is very important. Then, if the level of credibility is considered to be good, then the level of legality of a system can be taken into consideration (Hatmojo et al., 2019).

This also applies to taxpayers who want to pay PKB. QRIS, which has direct integration with Bank Indonesia, has a fairly high level of security and privacy. Users don't need to worry about the installed QR because they are authorized to use BI, of course. Moreover, QRIS is fast. Merchants and users will receive transaction notifications immediately (Bank Indonesia, 2022). In addition, the payment option using QRIS creates transparency and guarantees the certainty of the payment amount of the PKB (Diskominfo Kaltara, 2023).

H3: The perception of QRIS credibility influences the compliance of PKB payments.

The framework of thought is a theoretical relationship with the factors that are listed as problems, so the framework of thought is structured in the following way.

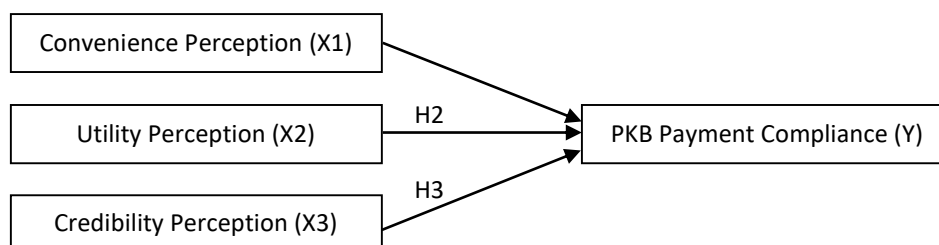


Figure 1. Framework of thought

## III. RESEARCH METHODS

This research aims to take a quantitative approach by modifying the Technology Acceptance Model (TAM). Then, the variables used in this research are Perceived Ease (X1), perceivedPerceivedutility (X2), perceived reliability (X3), and perceived payment compliance (Y) using QRIS. The sample was deliberately determined using the purposive sampling method by taking a sample that



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has the characteristics and has been determined with the research objectives in mind (Ayomi, 2021; P Panca et al., 2017). The focus of the research is on taxpayers who use QRIS in PKB payments in NTB, with 52 respondents. Primary data is obtained through the distribution of surveys to taxpayers. The questionnaire was conducted by filling out a Google form. The questionnaire sheets were distributed at Samsat Weekend in Mataram City. Then secondary data is used in journals, NTB Bappenda data, and other supporting articles.

The distribution of the questionnaires is based on five (5) Likert scale measurements. The questionnaire indicators for each variable have five question items each. The testing and analysis of the data have been done with the help of SmartPLS 4.0 software. In this study, the partial least squares (PLS) classification with structural equation modeling (SEM) technique was used, which can describe the linear relationship between the indicator variables and the latent variables at the same time (Anggita et al., 2019). SEM-PLS is a relevant method for the conduct of studies on complex model research in relation to multivariate structures (Sholihah & Nurhapsari, 2023).

### IV. RESEARCH RESULTS AND DISCUSSION

The results of the research illustrate the relationship between the values on the QRIS that have an impact on compliance with the payment of the vehicle tax (PKB). This explains the effectiveness of the QRIS payment method in increasing taxpayers' compliance with the payment of taxes. The number of respondents who were collected was 52. Furthermore, the measurement of the effectiveness of the QRIS payment method was carried out through the processing and analysis of the data from the questionnaire using the SmartPLS 4.0 application. The PLS algorithm was used to process the data as follows.

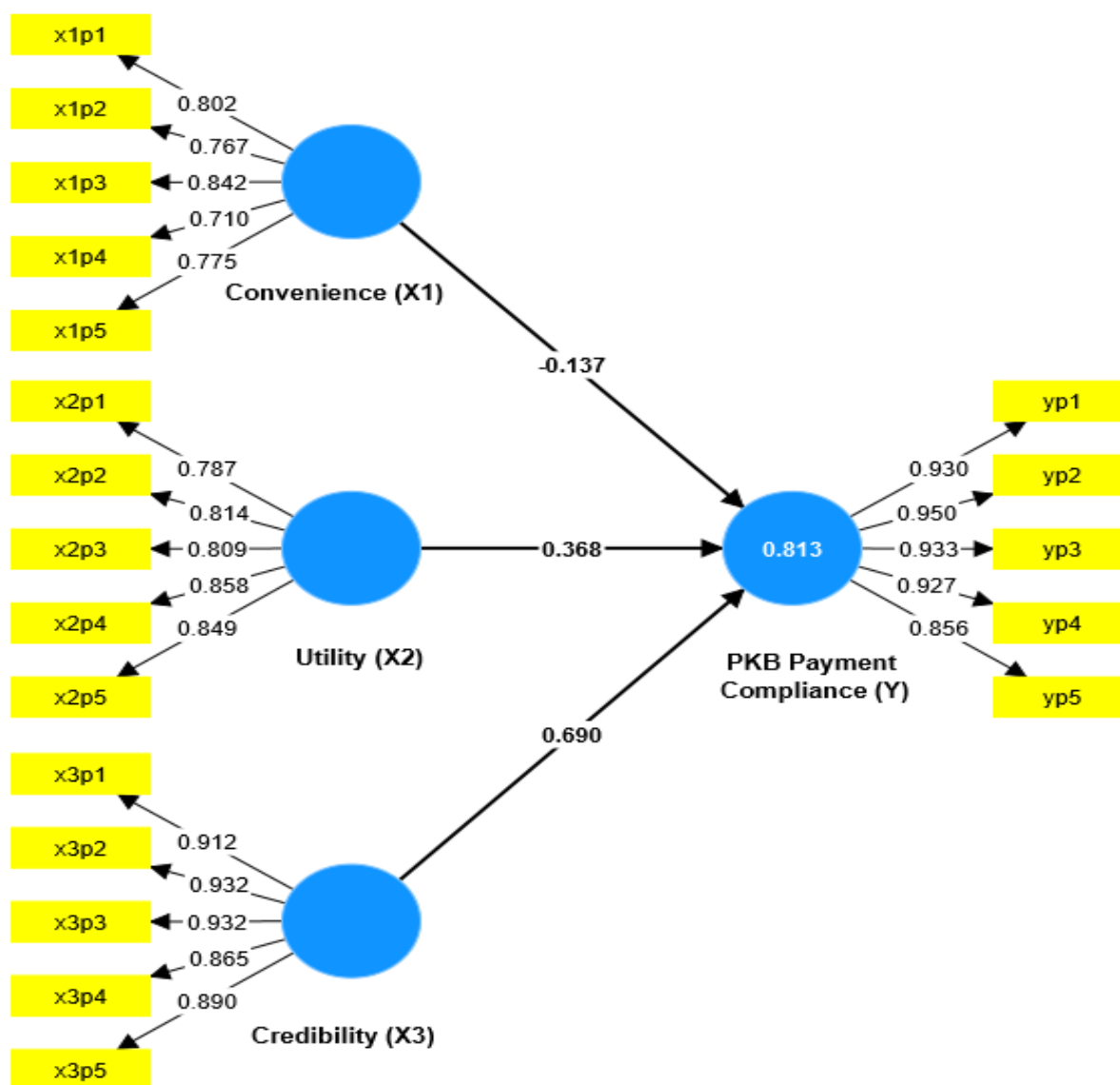


Figure 2. PLS Algorithm

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Figure 2: The PLS algorithm model (external model) evaluation is performed by testing the validity of external loadings. The purpose of the validity test is to measure the validity of the survey and demonstrate the correlation or relationship between the indicators and the latent variables. This test is considered valid if each indicator has a high correlation value, that is, an external loading  $> 0.7$ . If an outer loading  $< 0.7$  is found, then the question indicator in the questionnaire is invalid and can be eliminated (Pamungkas & Setyawati, 2021).

**Table 1. Validity test**

Variable	Indicator	Outer Loading	Validity
Convenience (X1)	x1p1	0.802	Valid
	x1p2	0.767	Valid
	x1p3	0.842	Valid
	x1p4	0.710	Valid
	x1p5	0.775	Valid
Ulidity (X2)	x2p1	0.787	Valid
	x2p2	0.814	Valid
	x2p3	0.809	Valid
	x2p4	0.858	Valid
	x2p5	0.849	Valid
Credibility (X3)	x3p1	0.912	Valid
	x3p2	0.932	Valid
	x3p3	0.932	Valid
	x3p4	0.865	Valid
	x3p5	0.890	Valid
PKB Payment Compliance (Y)	yp1	0.930	Valid
	yp2	0.950	Valid
	yp3	0.933	Valid
	yp4	0.927	Valid
	yp5	0.856	Valid

The validity test is an important measure of whether the data is valid or not. The validity test table above shows that all indicators in the variables comfort (X1), ulidity (X2), credibility (X3), and PKB payment adherence (Y) are declared valid. In the table, there is evidence of compliance with the requirements, namely that there is an external load value  $> 0.7$ , so that there is no elimination of the indicator.

**Table 2. Cronbach's alpha test, Composite reliability test (rho\_c), AVE test**

Variable	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Convenience (X1)	0.841	0.886	0.609
Ulidity (X2)	0.882	0.913	0.679
Credibility (X3)	0.946	0.958	0.822
PKB Payment (Y)	0.954	0.965	0.846

A reliability test is as important as a validity test. Reliability testing is used to measure the indicators in a questionnaire, which is a variable that represents the facts in the field (Ghozali, 2014, 2018). Reliability testing is considered reliable if Cronbach's alpha  $> 0.70$  and composite reliability (rho\_c)  $> 0.70$ . One of the methods used to test reliability is Cronbach's alpha test, which is often used (Slamet & Wahyuningsih, 2022). Table 2 shows that Cronbach's alpha  $> 0.7$  and composite reliability (rho\_c)  $> 0.70$ , so all indicators for each variable are declared reliable.

Furthermore, the AVE is another test for determining the discriminant's validity. The AVE test is considered valid if the indicator for each variable is  $> 0.50$ . In Table 2, the AVE configuration value shows each variable  $> 0.50$ . Therefore, each variable is declared valid.

The results of the  $R^2$  test and the hypothesis test are shown in Figure 3. The bootstrapped value is used to measure the level of influence between variables.



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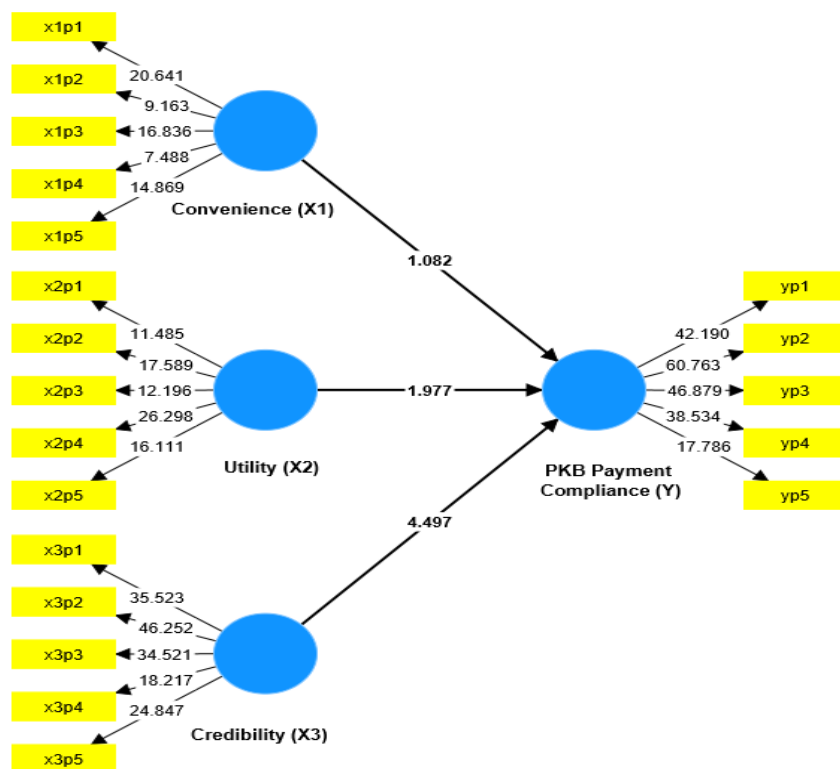


Figure 3. Bootstrapping Value

Table 3. Coefficient of Determination

Variable	R - Square
PKB Payment Compliance (Y)	0.813

In Table 3, the coefficient of determination test is performed to determine the relationship or influence of the independent variable on the dependent variable. Table 3 shows that the value of the R-squared is 0.813, or 81.3%. This explains that PKB payment compliance (Y) is influenced by 81.3% of the values in QRIS, namely convenience (X1), utility (X2), and credibility (X3). Then, the remaining 18.7% of the values are influenced by variables in other QRIS values.

Hypothesis testing is performed using the path coefficient. The path coefficient is used to measure the truth of the original research claims. In Table 4, hypothesis testing is performed by looking at the original sample (O), T statistic, and p-value as statements of whether a relationship between the independent variable and the dependent variable is accepted or rejected. The level of significance is taken at the 5% level of error, or the p-value is less than 0.05 and the T statistic is greater than 1.96 (Hermawan & Hasibuan, 2016).

Table 4. Hypothesis testing

Variable	Hypothesis	Original sample (O)	T statistic (O/STDEV)	P-value	Decision
Convenience -> PKB Payment Compliance (Y)	H1	-0.137	1.082	0.280	Rejected
Utility -> PKB Payment Compliance (Y)	H2	0.368	1.977	0.049	Accepted
Credibility -> PKB Payment Compliance (Y)	H3	0.690	4.497	0.000	Accepted

Based on Table 4, it shows that perceived convenience has a negative and significant effect on adhering to PKB payments. This is shown by the original sample -0.137 with a negative value, t-statistic  $1.082 < 1.96$  and p-value  $> 0.05$ , so that hypothesis 1, namely the perceived ease of QRIS values influencing compliance with PKB payments, is rejected.

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In addition, H2, the perceived utility, has a positive and significant effect on compliance with PKB payments, as seen with the original sample (O) 0.368, a positive value, a t-statistic value of  $1.977 > 1.96$ , and a p-value of  $0.049 < 0.05$ . Hypothesis H2, namely that the perceived utility of the QRIS value influences compliance with paying the PKB, is accepted.

Hypothesis H3, that the perceived credibility of the QRIS value influences PKB payment compliance, is accepted. This can be seen in H3. Perceived credibility shows a positive and significant influence on complying with PKB. The original sample value (O) of 0.690 is positive. The t-statistic is  $4.497 > 1.96$ , and the p-value is  $0.000 < 0.05$ . Hypothesis H2, that the perceived utility of QRIS value affects PKB payment compliance, is accepted.

### The Perception of the Convenience of the QRIS Influences the Compliance with PKB Payments

This research shows that perceived QRIS ease of use does not positively affect PKB payment compliance. After hypothesis testing, the variable ease of use of QRIS on PKB payment compliance was not significant, and this hypothesis was rejected. The results of this study are consistent with research conducted by Gufran et al. (2023) and Laloan et al. (2023) which found that perceived convenience does not have a positive impact on using QRIS. This explains that the perceived ease of using QRIS does not have a significant effect on PKB payment compliance among West Nusa Tenggara (NTB) people. The assumption that QRIS is easy to use for NTB taxpayers was not accepted based on the research conducted by several researchers, including Nadia & Wiryawan (2022), Sholihah & Nurhapsari (2023).

### Perceived utility of QRIS influences PKB compliance

The results of the research show that the perception of the utility of the QRIS has a positive influence on the compliance of PKB payments. The results of this study are consistent with research conducted by Gufran et al. (2023), Laloan et al., (2023), Rahman & Supriyanto (2022), Sholihah & Nurhapsari (2023) that perceived utility has a positive influence on using QRIS. Perceived utility is a motivator for NTB taxpayers to pay PKB through QRIS. The benefits perceived by the taxpayers who switch to the use of QRIS explain that the digital payment technology is beneficial for the users. The results of this research are supported by the TAM theory that the perception of benefits is the decision to use QRIS so that tax payments increase payment compliance rates.

### Perceived QRIS credibility impacts PKB payment compliance

The perception of credibility has a positive effect on compliance with the PKB payment. This research is consistent with research conducted by (Agustina & Musmini, 2022) showing that credibility has a positive effect on using QRIS. Credibility is included in TAM. The level of security in protecting against fraud, sabotage, accuracy of information, and transparency of PKB payments has made the NTB community switch to using QRIS. Taxpayers feel safe using QRIS, which is why they continue to use it and pay high nominal amounts.

## V. CONCLUSIONS

This research explains the influence of QRIS values, namely perceptions of convenience, utility, and credibility, on compliance with vehicle tax payments in West Nusa Tenggara. The results of the research show that the perception of the convenience of the QRIS has no effect on the compliance of PKB payments. However, the perception of the utility and credibility of the QRIS has a direct impact on the PKB payment compliance of the people in West Nusa Tenggara. Thus, it can be concluded that the more useful and credible the application of technology in a payment system, the more influence it will have on people's use of it. This is in line with the concept of TAM that was applied in this research.

The QRIS payment method for vehicle tax has not shown high figures. This is because the system has just been introduced to the public. Therefore, the West Nusa Tenggara government and officials need to conduct outreach to different regions in West Nusa Tenggara regarding the QRIS payment method for paying vehicle tax. Then, other independent variables that can affect the compliance of car tax payments when using QRIS can be added to further research.

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## Analysis of Eye Coordination, Arm Power and Vo2max in Archery Athletes in Terms of Gender



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**ABSTRACT:** Archery is a sport that prioritizes endurance, strength, accuracy, coordination, flexibility and balance to form archery techniques. These factors must all be supported by training, excellent and long-lasting physical condition. Therefore, every archery athlete must have excellent physical condition when facing a competition or championship. In performance sports, a person or athlete needs good physical condition in addition to technical ability. The physical training provided must be in accordance with the characteristics of the number being developed and in accordance with the physical condition of the swimming athlete himself. Strength is an important basic element in supporting movement skills. Strength is required in all sports for all activities that depend on strength. The strength that works more in archery is muscle strength. Muscle strength refers to a muscle group that is capable of carrying out long contractions. Arm muscle strength is the ability of a muscle or group of muscles to contract dynamically or statically by pulling a weight for a relatively long time, to provide encouragement to create consistency of movement from the beginning to the end of archery. Therefore, the strength of the arm muscles and the physical condition of the archer are very important to achieve optimal results. Through this research, researchers are interested in conducting research with the title analysis of hand eye coordination, arm power and vo2max of archery athletes in terms of gender. After the results of the physical condition analysis are obtained, the researchers hope that archery coaches and athletes can further optimize competition preparation and achieve the best performance. The method in this research program is quantitative descriptive. With physical condition test instruments for archery athletes. This study aims to determine the results of the analysis of hand eye coordination, arm power and vo2max of archery athletes in terms of gender. The population in this study was the KONI archery athletes from Bantul Regency, totaling 24 athletes. Based on the research results, it can be concluded that arm length, eye-hand coordination and VO2max of KONI archery athletes in Bantul Regency are in the medium category.

**KEYWORDS:** Hand Eye Coordination, Arm Power, Vo2max, Performance, Athlete, Archery

### INTRODUCTION

Combined sports are regular and planned physical movements that people do with the aim of achieving certain targets or goals. Sport is also a series of regular and planned physical movements to maintain movement (maintain life) and increase movement ability or improve quality of life (M. Agus Saputra<sup>1</sup>, 2019). Like eating, exercise is a periodic necessity of life, meaning that exercise as a form of maintaining and maintaining health cannot be abandoned (Ari Y & Indriyaniastuti, 2009). Sports activities are not only to improve the quality of life, but sports also pervade all human culture, such as exercise, entertainment, profession, business, politics and achievement. It depends on the goals you want to achieve through sport. Achieving achievements in sports is something that is quite complex, because many factors influence it. Coaching in the sport of archery is one of the efforts to increase maximum achievement, namely through coaching and developing sports for the younger generation from an early age (Septian et al., 2017). Archery is an activity using a bow to shoot arrows. Archery or archery is a sport that requires skills such as strength, endurance, flexibility, accuracy to reach the target (Jannah, 2017). Archery is a sport that prioritizes endurance, strength, accuracy, coordination, flexibility and balance to form archery techniques. These factors must all be supported by training, excellent and long-lasting physical condition (Arisman & Noviarini, 2021). Therefore, every archery athlete must have excellent physical condition when facing a competition or championship. In performance sports, a person or athlete needs good physical condition in addition to technical ability. The physical training provided must be in accordance with the characteristics of the number being



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developed and in accordance with the physical condition of the swimming athlete himself. Strength is an important basic element in supporting movement skills (Prasetyo et al., 2020). Strength is required in all sports for all activities that depend on strength. The strength that works more in archery is muscle strength. Muscle strength refers to a muscle group that is capable of carrying out long contractions. Arm muscle strength is the ability of a muscle or group of muscles to contract dynamically or statically by pulling a weight for a relatively long time, to provide encouragement to create consistency of movement from the beginning to the end of archery (Windasari, 2021). Therefore, the strength of the arm muscles and the physical condition of the archer are very important to achieve optimal results (Putri & Cahyani, 2019). The muscles involved in pulling the bowstring must receive special attention in the sport of archery because these muscles work extra hard in pulling and holding the weight of the bow which is quite heavy and occurs repeatedly in a series of archery movements (Roy Try Putra & Fajar Rizki Pambudi, 2021). Therefore, these muscles must have strength and endurance to be able to carry out the movement of pulling the bowstring so that it remains consistent and steady in accordance with the movement process (axis) (Wicaksono, 2014). The main muscles that must be trained and developed in archery are the muscles that work, including the triceps, biceps, deltoids and trapezius muscles, palmar aponeurosis, biceps, triceps, deltoids and subscapularis (Saparuddin, 2019). Therefore, it is necessary to analyze hand-eye coordination, arm power and vo2max of archery athletes in terms of gender. This is to determine the physical condition in optimizing match preparation and to achieve maximum performance. Through this research, the researcher intends to do this with the research title "analysis of hand eye coordination, arm power and vo2max of archery athletes in terms of gender".

### METHOD

The method in this research program is quantitative descriptive. With physical condition test instruments for archery athletes. This study aims to determine the results of the analysis of hand eye coordination, arm power and vo2max of archery athletes in terms of gender. The population in this study was the KONI archery athletes from Bantul Regency, totaling 24 athletes. Research activities in the community consist of three main steps. These three steps are, pre-activity, during the activity and post-activity. The details of each step are as follows:

a. Pre-activity.

Pre-activity is the planning stage of the activities to be carried out. Prepare materials and tools for physical condition test instruments. Licensing for research sites and conditioning of archery athletes who are the target of the program.

b. During activities

Implementation is the main stage of this activity, namely providing physical condition test instruments, namely tests of hand eye coordination, arm power and vo2max for archery athletes in terms of gender.

c. Post-activity (monitoring and evaluation.)

Post-activity is the final activity in this series of activities, these activities include, reflecting on activities that have been carried out together with team members, compiling reports and preparing materials for output publication.

### RESULTS AND DISCUSSION

**Table 1. Achievement Targets**

Number	Target	Achievement Indicators
1	Researchers can find out the results of the analysis of hand eye coordination, arm power and vo2max of archery athletes in terms of gender.	✓
2	Archery coaches and athletes can find out the results of hand eye coordination tests, arm power and vo2max of archery athletes in terms of gender.	✓
3	The emergence of athletes who excel is because all athletes are able to maintain their physical condition in competing and get maximum results	✓

**Table 2. Test and measurement results**

Number	Name	Sports	Arm Length (cm)	Hand-eye Coordination Test	Vo2max
1	Endang Suminarti	Archery	73	7	2.3
2	Fairuzzahra Prajna N	Archery	74	4	7.1
3	Luthfia Annisa Surya	Archery	69	4	4.2
4	Elvina Ika Fitriana	Archery	76	11	6.2
5	Alif Lukmanul Hakim	Archery	80	5	8.1
6	Sardilaily Ulfah	Archery	69	5	2.4
7	M Syawal I	Archery	69	12	6.9



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8	Nadifa Qotrunanada	Archery	72	12	7.1
9	Nurul Andriyani	Archery	67	12	6.2
10	Arkana Azalia T	Archery	78	10	5.7
11	Biru Laksita	Archery	70	2	3.2
12	Azzahra Musya Setyaji	Archery	69	10	4.9
13	Zahra Sabrina S	Archery	67	2	3.4
14	Supatmi	Archery	67	1	3.4
15	R. Retno Widuri	Archery	71	10	3.1
16	Hanafi	Archery	69	8	4.1
17	Agung Budiantoro	Archery	75	8	4.3
18	Kumoro Agung Samudro	Archery	79	16	4.9
19	M. Nesa Putra Ardian	Archery	80	10	8.1
20	Esha Andira Callita	Archery	72	10	4.5
21	Bintang Danes Suara	Archery	76	8	9.7
22	Ivan Nurhidayat	Archery	71	13	9.1
23	Alvino Choirul Azhar	Archery	80	11	7.4
24	Baihaqi Mustafa Surya	Archery	84	6	6.6

From the table above, the results can be obtained that arm length, eye-hand coordination and VO<sub>2</sub>max of KONI archery athletes in Bantul Regency are in the medium category. Archery is a sport that uses bows and arrows in its application, where arrows are released along a certain trajectory towards a target at a certain distance. Archery requires its own expertise or skills (Arisman & Okilanda, 2020). Archery is a sport that requires good skills, this sport is familiar to all levels of Indonesian society. This sport knows no age, social layer of society, from adults and teenagers even to early childhood and elementary school. In carrying out good archery skills, it must be accompanied by good technical movements, each player must be able to release his arrow precisely on the predetermined target (Arisman, 2018). This archery sport is a target sport with a point count, the highest points are 10 and the lowest is 5, if the arrow deviates from the target you get points (Yachsie et al., 2021). Archery is a sport that is quite popular in the current era. So there are many archery schools found and they are spread in almost all big cities in Indonesia. Archery is not a type of sport that is easy to learn in a short time. However, it takes time to master it properly. Mastering the correct technique is one of the keys to achieving maximum performance. Achieving maximum results requires patience, expertise and tenacity (Retnoningsasy, 2020). Therefore, if someone wants to learn archery, they must first learn about archery stance (shooting form). The correct archery stance must apply biomechanical rules (Eka et al., 2020). This means that every movement made by an archer must not violate the applicable rules or laws of movement mechanics. When studying archery techniques, one must apply the principles of motion mechanics (Irfan, 2018).

### CONCLUSION

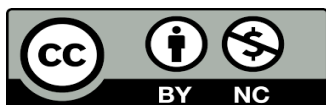
Based on the research results, it can be concluded that arm length, eye-hand coordination and VO<sub>2</sub>max of KONI archery athletes in Bantul Regency are in the medium category.

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## Property and Supply Management Practices of Ilocos Sur Polytechnic State College



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**ABSTRACT:** This study looked into the assessment and evaluation of the implementation of Property and Supply Management Practices of the Ilocos Sur Polytechnic State College based on four (4) aspects which are planning, acquisition or procurement, custodianship or maintenance, issuance and utilization, accounting and disposal. The Property and Supply Management is one of the basic functions of management involving fund and money. It is an important function because supplies, materials and equipment are basic requirements of an organization in the accomplishment of its goals and objectives. It further aimed to answer the following questions (1) what is the profile of the respondents in terms of the following personal factors in terms of Sex, Civil status, Age, Educational attainment, Position, Number of years in Present Position, Length of Service in ISPSC; and Relevant trainings and Seminars Attended? (2) What is the level of awareness of the respondents in terms of the requirements of the Property and Supply Management of ISPSC along Procurement in terms of Withdrawal of requests from the store room, Submission of requests for purchase, Funding of requests, Canvassing of requests, Opening of canvass papers, Preparation of purchase Orders, Delivery of supplies/materials and equipment, Inspection of delivered supplies/materials and equipment; along Custodianship/Accountability in terms of Documentation and Monitoring property Accountability; Issuance, Utilization and Maintenance; and Disposal? (3) Is there significant relationship between the respondents' personal/professional factors and their level of awareness on the property and supply management practices? and (4) What are the problems encountered by the respondents along the above mentioned practices?

The descriptive method of research was implemented in the study. This approach provided accurate and meaningful data/information of the prevailing management practices in each of the component of the respondents.

The study consisted of 86 respondents which is comprised of the Deans/Campus Directors/ Executive Deans, Office Heads, Directors, Nurses/Dentist/Medical Officer, Clerks, Janitors/Utility Workers, Acting Registrars/Registrars, Librarian, and Instructors who are directly involved with the Property and Supply Management Practices.

The data were gathered from the respondents was through the use of a structured questionnaire adapted by the researcher. Additional information also gathered through unstructured interview with the Head and Staff of the Property and Supply Office.

The frequency distribution, percentage, weighted mean and one way analysis of variables (ANOVA) were used to tally, tabulate and develop the data gathered.

The requisitioners of the college are mostly female, single, college graduate, have been in the service for 10 years and below, janitors/utility workers who have been occupying their position for 10 years and below and did not attend relevant training or seminars. The level of awareness of the respondents on the requirements of the Property and Supply Management Practices of ISPSC along Procurement and Issuance, Utilization and Maintenance of Supplies, Materials and Equipment is at great extent. The level of awareness of the respondents on the requirements of the Property and Supply Management Practices of ISPSC along Custodianship/Accountability and Disposal is at Moderate Extent. The respondents' personal/professional characteristics do not influence their level of awareness along procurement, custodianship/accountability, issuance, utilization and maintenance, and disposal practices of ISPSC. There are various problems encountered by the respondents on the different practices of the different areas of the Property and Supply Management such as poor quality of supplies and equipment procured, absence / inadequate regular cleaning and maintenance of machines / equipment, inadequate provision of supplies, materials and equipment for the college, institute, departments, project or office, unavailability of qualified suppliers within the locality / vicinity, jacking up of prices of supplies, materials and equipment for financial purposes, and illegal use of supplies, materials and equipment for personal purposes.

**KEYWORDS:** Property and Supply, Management, Acquisition, Custodianship

# Property and Supply Management Practices of Ilocos Sur Polytechnic State College

## INTRODUCTION

Property and supply management has a vital role to play in an organization. This entails the proper storage and safekeeping of property and supply of the organization, the procurement, purchase and issuance of supplies needed by the campuses and offices of Ilocos Sur Polytechnic State College (ISPSC). The role of property and supply management is to appraise and control costs without impairing the ability of supply needed.

Supplies and materials are considered vital factors in the successful management of an organization, be it a private enterprise or a government entity. As such, consideration should be made on the procedure of proper handling or shipment and utilization of supplies and materials, this imply the knowledge to determine the needs of a particular office as to qualify and quantity of suppliers.

For 13 years of existence of Ilocos Sur Polytechnic State College, management changes from time to time. Policies, rules and regulations had been created for the benefit of the College, in general, and to compete with other SUCs in the region and in the whole country as well. Property and management is an aspect that is considered very important because the supplies and needs of every campus are kept and stored with the diligence of a good father. This supplies and needs are the lifeblood of an institution for existence. A property custodian or a supply officer must have the authority, as delegated, to inspect, control, purchase, distribute, and dispose supplies and property which are needed in every campus.

ISPSC is the youngest SUC created in the region that caters more than 4,000 students and composed of competent faculty, personnel and brilliant administrators who mold each individual to become educated, reputable and able graduates of this institution. This is evidenced by the graduates produced by the College. However, behind the excellence of the faculty and the success of the students, there is still a great needs that must be provided in order to cater the needs of the institution and the whole studentry which one must maintain excellent learning process.

As cited earlier, a supply officer must procure and issue the various needs of the College and have to protect the supplies and the properties with the diligence and due care. This basic function of a supply officer entails that management is not an easy task because of the risks involved. As such, it requires a lot of time and effort for inspection of goods acquired, proper disposal and distribution to every campus and proper inventory system needed by each of the campuses.

The importance of developing an operative or workable system of the supply and management and its strict implementation should gain the attention of the top management. The numerous suspensions and disallowances incurred in the procurement of the supplies and materials as well as the unsatisfied response of the requisitioners/end-users are not enough and serious problems that needs to be addressed.

Hence, this study will be useful to correct the deficiencies and inefficiencies of the procurement and utilization practice. More importantly, it can serve as an input to further studies.

## OBJECTIVES OF THE STUDY

This study looked into the awareness on the implementation of Property and Supply Management Practices of the Ilocos Sur Polytechnic State College based on four (4) aspects which are acquisition or procurement, custodianship or maintenance, issuance and utilization, and disposal during the Academic Year 2010-2011. The Property and Supply Management is one of the basic functions of management involving fund and money. It is an important function because supplies, materials and equipment are basic requirements of an organization in the accomplishment of its goals and objectives. It further aimed to answer the following questions:

1. What is the profile of the respondents in terms of the following personal factors?
  - 1.1. Sex;
  - 1.2. Civil status;
  - 1.3. Age
  - 1.4. Educational attainment;
  - 1.5. Position
  - 1.6. Number of years in Present Position;
  - 1.7. Length of Service in ISPSC; and
  - 1.8. Relevant trainings and Seminars Attended?
2. What is the level of awareness of the respondents in terms of the requirements of the Property and Supply Management Practice of ISPSC?
  - a. Procurement
    1. Withdrawal of requests from the store room
    2. Submission of requests for purchase

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3. Funding of requests
4. Canvassing of requests
5. Opening of canvass papers
6. Preparation of purchase Orders
7. Delivery of supplies/materials and equipment
8. Inspection of delivered supplies/materials and equipment
- b. Custodianship/Accountability
  1. Documentation
  2. Monitoring property Accountability
- c. Issuance, Utilization and Maintenance; and
- d. Disposal?
  3. Is there significant relationship between the respondents' personal/professional factors and their level of awareness on the property and supply management practices?
  4. What are the problems encountered by the respondents along the above mentioned practices?

### METHODOLOGY

The descriptive method of research was applied in this study. The researchers' respondents were the 6 campuses of Ilocos Sur Polytechnic State College composed of the Deans including Graduate School, Directors, Office Heads including the Staff, Registrars, Nurses/ Dentist/Medical Officer, Clerks, and Janitors/Utility Worker in a total of 86 respondents. Questionnaires were distributed to campuses for them to answer which was the basis for conclusions and recommendations. The primary instrument used in gathering data was through the use of questionnaire. The researcher based this on specific problems of the study. The questionnaire was composed of four (4) parts: the first part is the employee profile; the second part is the evaluation and assessment of the implementation of Property and Supply Management Practice; the third part is the impact and control measures in the Property and Supply Management Practices and the last part is the problems encountered. Along with this, the first and second part is partly adapted from the questionnaire of Ms. Mark Trisky Adona while the third and fourth part is taken from the questionnaires of Carmencita Abaccan, Raul M. Cadiongan, Nicanra J. Coilan, and Jocelyn B. Dangle. The statistical tool used were frequencies and percentages to describe the respondents of the study, simple mean to determine the level of awareness of the respondents along the Property and Supply Management practices of the College and Simple Linear Correlation Analysis to look into the relationship between the respondents' personal / professional factors and level of awareness on the Property and Supply Management Practices.

### FINDINGS

The study came out with the following results: on the profile of the respondents; 47 or 54.65% are female, 44 or 51.61% are single, 35 or 40.70% are ages 21-35, 38 or 44.19% are Degree Holder or College graduate, 36 or 41.86% in service for 10 years and below and 78 or 90.70% have not attended seminars or trainings in line with Property and Supply Management. On the level of Awareness on the requirements of the Property and Supply Management Practices of ISPSC along procurement is at Great Extent, along Custodianship / Accountability is at Moderate Extent, along Issuance / Utilization and Maintenance is at Great Extent and along disposal is at Moderate Extent. There is a significant relationship between the respondents' personal/professional characteristics particularly on the trainings and seminars attended and their level of awareness on the procurement, custodianship/accountability, issuance, utilization and maintenance, and disposal practices of ISPSC. Other personal/professional factors excluding the above mentioned do not have any significant relationship with the level of awareness on the procurement, custodianship/accountability, issuance, utilization and maintenance, and disposal practices of ISPSC. There are various problems that are encountered by the respondents along the different Property and Supply Management Practices. These problems have varying degree of occurrence. Six of the items were identified to be a serious problem of the respondents along Property and Supply Management Practices such as Poor quality of supplies and equipment procured, absence / inadequate regular cleaning and maintenance of machines / equipment, inadequate provision of supplies, materials and equipment for the college, institute, departments, project or office, unavailability of qualified suppliers within the locality / vicinity, jacking up of prices of supplies, materials and equipment for financial purposes, illegal use of supplies, materials and equipment for personal purposes.

### CONCLUSION

In conclusion, the requisitioners of the college are mostly female, single, college graduate, have been in the service for 10 years and below, janitors/utility workers who have been occupying their position for 10 years and below and did not attend relevant

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training or seminars. The level of awareness of the respondents on the requirements of the Property and Supply Management Practices of ISPSC along Procurement and Issuance, Utilization and Maintenance of Supplies, Materials and Equipment is at great extent. The level of awareness of the respondents on the requirements of the Property and Supply Management Practices of ISPSC along Custodianship/Accountability and Disposal is at Moderate Extent. The respondents' personal/professional characteristics do not influence their level of awareness along procurement, custodianship/accountability, issuance, utilization and maintenance, and disposal practices of ISPSC. There are various problems encountered by the respondents on the different practices of the different areas of the Property and Supply Management. Six of the items were identified to be a serious problem of the respondents along Property and Supply Management Practices such as poor quality of supplies and equipment procured, absence / inadequate regular cleaning and maintenance of machines / equipment, inadequate provision of supplies, materials and equipment for the college, institute, departments, project or office, unavailability of qualified suppliers within the locality / vicinity, jacking up of prices of supplies, materials and equipment for financial purposes, and illegal use of supplies, materials and equipment for personal purposes.

### RECOMMENDATIONS

It is hereby recommended that the College must utilize and upkeep the available supplies, materials and equipment in the stockroom and avoid the spoilage of supplies due to unforeseen events such as force majeure, fortuitous events that eventually lead to damage of properties and supplies. The attainment of goals and objectives on Property and Supply Management should need further improvement for these to be fully attained. Information dissemination on new circulars, issuances or rules concerning Property and Supply Management should be extensively explained to the respondents as well as to the end-users for uniform implementation and come up with policies and procedures that will improve the operation of the College and maximize it effectively. Rules, procedures and policies on Property and Supply Management should be made simple but systematic to be followed by every employee. Flow chart must be strictly followed in processing of documents pertaining to supply and property management to avoid linkage of red tape. Compliance of control measures must be complied with to safeguard government properties. Utilized bids and awards committee to countercheck the validity of the transaction. Problems must be addressed by the head of the agency in a holistic and objective manner because small problems can be a barrier to the attainment of the College's Visions, Goals, Mission and Objectives. Likewise, the agency must come up with alternatives that yield better results in managing their resources.

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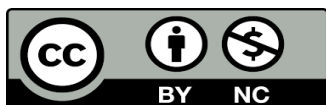
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## Legal Protection against Physicians for Presumed Malpractice in Indonesia: A Judicial Review



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**ABSTRACT:** Increased public awareness of health rights and legal access has sparked intensive discussions on malpractice in healthcare. However, differing views between lawyers and doctors regarding the definition of malpractice as well as the limits of doctors' authority create complexity. Types of medical malpractice, such as criminal, administrative, ethical and meritorious, are the focus for understanding the legal liability framework. Although civil law can protect consumers, the lack of an independent medical law formulation in Indonesia is an obstacle. Normative research methods are used to explore the legal views and responsibilities of doctors in medical practice. Discussions on malpractice proof, legal protection for doctors, and ethical and legal obligations in medical practice contribute to the understanding of this complex issue. Therefore, this article aims to detail the legal and ethical framework related to medical malpractice in Indonesia and explore protection and enforcement efforts to optimize the relationship between patients and the medical profession.

**KEYWORDS:** Malpractice; Medicine; Legal Protection; Health Laws;

### I. INTRODUCTION

Malpractice in healthcare has become an increasing topic of conversation in recent years. Many complaints of malpractice cases from the public reflect awareness of their rights and increased access to legal services. However, differing views between lawyers and doctors on the definition of malpractice can be a source of problems. To address this, there is a need for mutual agreement on the definition of malpractice and the limits of doctors' authority in their practice. This will help prevent unwarranted allegations of malpractice, promote mutual understanding, and maintain the relationship between patients and the medical profession. [1]

There are several types of medical malpractice, including criminal, administrative, and ethical and meritorious malpractice. Criminal malpractice involves medical acts that violate criminal laws, such as physician negligence or misconduct that leads to the death of a patient. Administrative malpractice is medical acts that violate administrative laws, such as practicing without a license or with an expired license. Ethical and professional malpractice involves medical actions that violate the ethics and norms of the medical profession, such as not providing clear information to patients or performing actions outside the applicable medical professional standards.[2,3]

In malpractice cases, civil law can be used as a form of liability and consumer protection. The patient or the patient's family can sue civilly if they consider that the doctor has committed an unlawful act based on Article 55 of Law No. 23 of 1992 concerning Health. In addition to civil suits, malpractice can also be prosecuted criminally under Article 359 of the Criminal Code.[1,4] Until now, in Indonesia, medical law has not been formulated independently, causing differences in the understanding and definition of medical malpractice depending on individual perspectives. Therefore, this paper will discuss the juridical review and legal protection of doctors suspected of committing malpractice.[1,2]

### II. RESEARCH METHODS

The research method applied in this study is a normative approach. The normative legal approach, also known as library research, involves the investigation, review and analysis of existing literature or documents. In the context of legal research, this method is often referred to as Legal Research, doctrine, or literature study, which involves analyzing various sources, such as laws and journals relevant to the issue being studied.

### III. RESULTS AND DISCUSSION

#### A. *Juridical Responsibility*

Law No. 29/2004 on Medical Practice was implemented to govern medical practice with the aim of providing protection to patients, maintaining and improving the quality of medical services, and providing legal certainty to the stakeholders, including the public, doctors, and dentists. At the beginning, this regulation regulates the requirements for doctors to practice medicine, including having a medical competency certificate from the College, a Registration Certificate from the Indonesian Medical Council, and a Practice License from the City or Regency Health Office. The doctor is also required to take a doctor's oath, maintain physical and mental health, and commit to abide by professional ethics.[4]

The element of obligation means that it must be done without exception, so it is absolute. While the element of action includes all actions taken, so that responsibility is a state that is legally valid for both individuals and legal entities, and is able to bear obligations for actions taken. In a legal context, responsibility means entanglement. Every individual, from birth to death, has rights and obligations, considered a legal subject. This also applies to doctors, who in every action must be responsible as a legal subject that carries rights and obligations. A doctor's actions can be distinguished between daily activities unrelated to his profession and actions related to the practice of his profession. Therefore, the legal responsibility of a doctor can involve various aspects related to the implementation of his profession.[5]

Doctors' attachment to legal provisions in carrying out their profession is a responsibility that must be fulfilled by doctors which basically includes 2 (two) responsibilities, namely:

1. Administration, which is contained in Article 29, Article 30 and Article 36 jo. 37, Law Number 29 of 2004 concerning Medical Practice.
2. Criminal provisions, where the formulation of articles regarding the responsibility of medical practice are listed in articles 75 to 80, Law. No. 29 Year 2004.

#### B. *Responsibilities within the Hospital Professional Environment*

##### 1) *Hospital Responsibility*

A hospital can be defined as "a facility in the health care system that provides inpatient care, outpatient care, and rehabilitation along with all its support." Thus, the hospital functions as a place for organizing health service efforts. In the context of legal relations as a social system, hospitals are considered as organizations that have the independence to perform legal actions. Hospitals are not personal entities that can engage in legal affairs as human beings (natural persons), but are given legal status as "persons" so that they are recognized as "legal entities." The law recognizes hospitals as "legal persons," and as such, hospitals have legal rights and obligations for the actions they take. To act legally as this legal subject, hospitals involve medical professionals or health workers, which do not only consist of doctors and dentists, but all types of health workers.[6]

Hospital organization is based on Pancasila and its values derived from humanity, ethics, and professionalism. In accordance with Law No. 44/2009, Article 2, to improve the efficiency and effectiveness of health services, the quality of health services is a necessity. Some points related to the explanation of the article include: [7]

1. The application of hospital management upholds the value of humanity by treating patients with kindness and compassion regardless of their colour, nationality, country, religion, or social status.
2. Professionalism and Ethics: Health workers who adhere and uphold to hospital ethics and possess professional attitudes and ethics demonstrate professionalism.
3. The concept of benefit value states that in order to preserve and raise the standard of public health, the hospital's organisation must maximise benefits to mankind.
4. The ability of the hospital organisation to offer high-quality care at a price that the community can pay, along with fair and equitable services, is what makes justice valuable.
5. Equality of rights and Anti-discrimination are implemented in form of the hospital's services distinguish the community both individually and in groups from all economic strata.
6. The hospital's organisation must interact with all societal strata in order to uphold the idea of equity.
7. The significance of protection is that the hospital's organisation must be able to improve health status while still keeping an eye on patient safety and protection. This goes beyond just providing medical services.
8. Patient safety is something that the hospital's administration constantly aims to enhance through clinical risk management initiatives.
9. A hospital's social function is an integral aspect of its duty, which is a moral and ethical commitment to aiding patients, particularly those who are less able to meet their own needs for medical care.

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### 2) Doctor's Responsibility

Fault or negligence is always linked, legally speaking, to a breach of the law—that is, an action committed by someone who can be held liable. A person is considered capable of responsibility if they can realize the true meaning of their actions, consider their actions in accordance with social norms, and are able to determine their intention or will in carrying out their actions. With reference to Article 1 paragraph (11) of Law No. 29 of 2004, doctors as holders of the profession are considered as individuals who are dedicated in the field of health, have knowledge and skills through medical education, and are authorized to provide health care.[8]

The following two perspectives can be used to examine accountability for the acts and deeds of the medical profession as a practical legal subject:

#### a. Accountability According to The Professional Code of Ethics

Reprimands and guidance are typically the only forms of corrective action given for violations of the code of ethics, as there are no official regulations on consequences. At most, this only leads to suggestions to the relevant institutions for administrative action as a preventive measure against the possibility of similar violations in the future. The primary distinction between law and ethics is that the government sets legal consequences, whereas professional associations define ethical standards. The law imposes stringent limitations on what can and cannot be done, whereas ethics places greater emphasis on the offender's moral consciousness and good intentions.[8]

#### b. Legal Liability

The legal responsibility of doctors includes the 'attachment' of doctors to legal provisions in carrying out their profession. This attachment includes legal responsibilities that include:[5]

- 1) Civil Liability
- 2) Criminal Responsibility
- 3) Administrative Responsibilities

As long as the medical treatment of the patient has been carried out correctly and properly according to professional standards, standard operating procedures, then even without the expected healing results, it does not give birth to medical malpractice from a legal point of view, but if after medical treatment there is a situation without the expected results (without healing) or may be more severe in the nature of the disease because of the doctor's medical treatment that violates professional standards, then the doctor is considered to have committed medical malpractice. Of course, with several conditions, namely, no cure or more severe disease after medical treatment from the point of view of professional standards, standard procedures, and general principles of medicine.

If the treatment is so severe that it meets criminal criteria, such as death or injury (articles 359 or 360 of the Criminal Code), criminal liability, which is not just compensation (civil), but may be punishment.[9]

#### C. Causes of Alleged Medical Malpractice in Hospitals

There are two main categories of causes of alleged medical malpractice in hospitals, namely willfulness (*dolus*) and negligence (*culpa*). Willfulness (*dolus*) is an *intentional tort*, which results in physical injury to a person (*assault and battery*). This is rare and can be classified as a criminal act based on the element of intent.[10] Meanwhile, negligence (*culpa*) is a category of medical negligence in the form of:

- *Malfeasance*: The doctor commits an act that is against the law;
- *Misfeasance*: An act that is not right;
- *Nonfeasance*: Not performing an action that one is actually obligated to perform;
- *Maltreatment*: Unprofessional treatment that does not meet the standards of the medical profession due to ignorance, negligence or lack of will to do better;
- *Criminal Negligence*: Indifference or disregard for the safety of others even though he knows that his actions will cause harm to others.[10]

The general criteria for negligence are: (1) The existence of an obligation based on a contract that gives birth to rights and obligations, depending on the type of performance, for example, performing medical actions according to professional norms and standards. (2) Neglect of duty that causes material loss, e.g. due to disability cannot earn a living anymore, and immaterial loss, e.g. emotional suffering/emotional instability. (3) The existence of a *causa* or cause, that the loss suffered is related to the act. In other words, there is a reciprocal relationship / cause and effect or cause in accordance with the law. A person is called negligent if they meet the criteria: Lack of care / reckless / negligent attitude; Doctors perform medical actions below

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professional standards; Doctors do something that should not be done; Not doing what should be done with a careful and reasonable attitude; Resulting in loss or injury to others.[10]

### D. Definition And Overview of Malpractice

A person experiencing health problems will naturally seek help from a medical professional, hoping to cure their ailment. At this point, the patient and the doctor have a highly significant legal connection that carries rights and obligations that both parties must uphold. As doctors perform their duties and carry out their medical obligations, there is a great potential that acts of negligence or lack of care in the exercise of their profession may result in unwanted suffering for the patient. This phenomenon is known as medical malpractice, a legal concept that has the potential to give rise to legal liability for adverse consequences that may be experienced by the patient due to the doctor's errors or omissions in his or her medical practice.[11]

Malpractice comes from the word "*mal*", which means bad, and "*practice*", which means an act or practice. Therefore, it can literally be defined as a "bad" medical act that doctors perform on their patients. In Indonesia, the term "malpractice" actually refers to a type of medical negligence, or medical negligence, in Indonesian. [1,11,12] With the increase in knowledge and knowledge in the health sector, the Indonesian people are increasingly critical as patients of the medical services they receive. Medical service activities that can be considered as malpractice include examinations, examination methods, tools used, drawing a diagnosis based on examination results, and types of therapy and treatment for maldiagnosis and maltherapy.[11]

To evaluate and prove whether a medical act falls under the category of malpractice or not, Hubert W. Smith has formulated four important elements referred to as the 4Ds. This is a framework used in the assessment of medical acts suspected of being malpractice. These elements help in determining whether a medical act has characteristics that can be considered as malpractice or not. First, the "duty" element. This element emphasizes that an act of malpractice can only occur if there is an inherent obligation on the party providing the medical care, in this case the doctor or hospital. Without a binding legal obligation, there can be no negligence, so this first element emphasizes that a legal relationship must exist between the patient and the doctor or hospital. The second element is "*dereliction*," which refers to a deviation in the performance of duty. This means that an act of malpractice occurs when the doctor, who has a duty to the patient, in this case performs actions that deviate from the prevailing standards of the medical profession. In other words, doctors must carry out their obligations following established medical standards. [13]

The third element is "*direct causation*". In this element, it is important to show that there is a clear causal link between the medical act performed by the doctor and the harm suffered by the patient. This means that the medical act directly caused the patient's harm. Finally, the fourth element is "*damage*," which indicates that the doctor was the direct cause of the patient's harm. In this element, it is important to prove that the medical act performed by the doctor was the main cause of the patient's harm.[13]

The criteria for medical actions that can be categorized as malpractice involve a number of important factors, namely legal arrangements, legal relationships between the parties, violations of rights and obligations, and legal consequences that arise. Medical actions can be classified as malpractice if they fulfill elements such as default, and/or fulfill elements of unlawful acts. In addition, medical actions that are malpractice will also cause harm to victims of malpractice, both physically and psychologically. In this situation, the patient or victim of malpractice has the right to file a lawsuit, which can include claims for compensation as well as criminal actions that result in the perpetrator of malpractice being imprisoned. [13]

In the Indonesian legal framework, which has a substantive law component as one of its elements, the term "malpractice" does not exist in the prevailing positive law, including in Law No. 23 of 1992 on Health and Law No. 29 of 2004 on Medical Practice. Law No. 23 of 1992, especially Articles 54 and 55, refer to doctors' actions as "mistakes" or "negligence." Meanwhile, Article 84 of Law No. 29 of 2004, refers to these actions as "violation of doctor's discipline." The main approach used to determine the existence of malpractice is the existence of a professional error committed by the doctor when providing care, and the negative impact experienced by other parties as a result of the doctor's actions. However, determining when exactly a professional error occurred is not a simple matter. [1]

### E. Proving Malpractice Fault

There are several systems or theories to prove the alleged act. These systems or theories of proof vary according to time and place (country), namely *positive wettelijk bewijstheorie*, *conviction intime*, *laconviction raisonnee* and *negatef wettelijk*. If a doctor's mistake is a professional mistake, then it is not easy for anyone who does not understand this profession to prove it in court. In the event that a doctor is accused of negligence so that the patient being treated dies, suffers serious injury or moderate injury, then what must be proven is the element of wrongdoing committed with a mental attitude in the form of negligence or lack of care. It should be understood that not every treatment result that does not meet the patient's expectations is evidence of criminal malpractice considering that such events can also be part of the risk of medical action.[6]

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It is also not always appropriate to use misdiagnosis as a barometer of unethical behaviour since there are a number of variables that affect diagnosis accuracy, some of which are outside of a physician's control. The components of the crime still need to be demonstrated; both of the aforementioned can only be used as presumptions. The doctor may face punishment specific to the kind of criminal offence he committed if found guilty. Furthermore, physicians may still be sued in civil court for their illegal actions (*onrechtmatige daad*). There are two ways to prove civil malpractice: directly or indirectly. By directly demonstrating the four components—responsibility, neglect of obligation, harm to health, and a clear connection between the two—the four elements can be established. Regarding indirect evidence, this refers to gathering data that, in accordance with the *res ipsa loquitor* concept, can establish the presence of the doctor's wrongdoing. The *res ipsa loquitor* doctrine is essentially a variation of the "doctrine of common knowledge," with the exception that in this case, expert testimony is still required to determine whether the discovered facts can be used to support the doctor's negligence. [6]

### F. Legal Protection of Medical Professional Related to Alleged Medical Malpractice

As stated by Hippocrates, medical profession is a combination of science and art. As in making a diagnosis is an art of its own for doctors, because after hearing the patient's complaints, following the patient's complaints. The doctor will imagine and make careful observations of his patient. The knowledge or theories of medicine and the experience he has received so far become the basis for diagnosing the patient's illness, it is hoped that the diagnosis is close to the truth.[14]

Article 50 of Law No. 29/2004 on Medical Practice and Article 27 paragraph (1) of Law No. 36/2009 on Health are the legal foundations that offer doctors legal protection in the course of practicing their profession and in dealing with the law in the event of suspected malpractice. Physicians and dentists practicing medicine have the right to legal protection under Article 50 of Law No. 29 of 2004, provided they fulfil their obligations in compliance with professional standards and professional procedural standards. Article 27 paragraph (1) of Law No. 36 of 2009 reads: Health workers are entitled to compensation and legal protection in carrying out their duties in accordance with their profession.[14,15]

A doctor has a duty to uphold informed consent as part of their professional duties. The term "informed consent" is made up of two words: "informed" (which means explanation or information) and "consent" (which indicates permission or approval). Therefore, informed consent suggests that the patient or his family gives their consent after being informed of the dangers involved in the medical procedures that will be performed on them. Apart from obtaining Informed Consent, physicians are required to create "Medical Records" for each patient in every health service activity. The Medical Practice Act's Article 46, paragraph (1), describes medical record arrangements. Files containing information regarding a patient's identity, examination, treatment, activities, and services are known as medical records. Medical records serve a number of purposes, including patient care, enhancing the calibre of services, funding, education and research, health statistics, and demonstrating ethical, disciplinary, and legal concerns.[15]

patient, because in the *Informed consent* there is a patient's willing consent or authorizes the doctor to take medical action against him. Meanwhile, Informed consent made in the hospital in written form is only formal because in principle Informed consent is not only written but the most important thing is consent.(Hermawan, 2007) Apart from being letter evidence, Informed consent can also be evidence of clues, this is regulated in article 186 of the Criminal Procedure Code paragraph (2), which states that clues can be obtained from letter testimony and testimony of the defendant, this also means that Informed consent can be used as evidence to show evidence that the patient has agreed and information has been given to him so that the doctor cannot be blamed.[8]

In principle, doctors who have provided medical services in accordance with professional standards, medical service standards and standard operating procedures are entitled to legal protection.[14]

### G. Medical Dispute Resolution Efforts

In the context of medical dispute resolution, there are two paths that can be followed, namely through litigation (through judicial channels) and non-litigation, which includes consensual approaches and out-of-court settlements. While litigation is a formalized process, it is often time-consuming, expensive and entails significant costs. The slow and formalistic nature of the judicial system often presents challenges to dispute resolution, and in many medical cases, creates winners and losers. [9,16,17]

In facing the challenges of resolving medical malpractice disputes in Indonesia, efforts are needed to find alternative solutions outside conventional judicial channels. One solution that has emerged is through mediation, which is able to provide a solution that benefits both parties in resolving this dispute. Medical dispute resolution through mediation can be a more efficient and fair alternative in dealing with problems related to medical errors.[9,17]

In the context of medical malpractice, there is a legal basis to claim compensation for errors in medical treatment that cause harm, based on Article 1365 of the Civil Code. This article emphasizes that every unlawful act that causes harm to another party requires the perpetrator of the act that causes the harm due to his or her fault to compensate for the loss.[18,19]



### IV. CONCLUSION

In an effort to improve legal protection for doctors, it is necessary to strengthen the legal framework, including clarification of the types of malpractice and more detailed remedies. Legal research using a normative approach, as illustrated in this paper, can provide a basis for identifying legal weaknesses that need to be corrected. At the same time, strengthening professional ethics and increasing legal awareness among doctors are also crucial steps in maintaining the quality of health services and positive relationships between doctors and patients.

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## Can the Bhutan Yak Federation Revitalize Waning Yak Herders' Enthusiasm and Rejuvenate the Declining Yak Farming in Bhutan



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**ABSTRACT:** Yaks, native to Bhutan and other Himalayan regions, play a crucial role in the livelihoods of highlanders, serving as a sources of milk products, meat, transportation, fiber, and even dung used as fuelwood for cooking. Concerned about the perceived decline in the country's yak population, the Bhutan Yak Federation (BYF) was established in 2019 to support highlanders. Presently, the BYF consists of 268 males and 203 females, representing 1067 yak rearing households. Its primary objectives include advocating for policy and investment support and promoting yak farming as a vibrant and sustainable enterprise. To gain a deeper understating of BYF's roles and functions, this study focused on the Lingshi and Sephu yak cooperatives under the Thimphu and Wangduephodrang districts, conducting phone interviews with 40 cooperative members. The study revealed that highlanders primarily generate income through the sale of cordyceps, followed by yak products, portering services, and medicinal plants collection. However, the income from yak product sales is only sufficient to cover the cost of feed resources for the yaks. Lack of adequate feed resources, especially during winter (n =40), and wildlife predation without compensation were identified as significant challenges faced by the herders. On average, each family loses 7 to 8 yaks annually due to wildlife predation, with additional issues of depredation by feral dogs and gid diseases in the Lingshi block. The BYF is an innovative initiative of the Department of Livestock, Ministry of Agriculture, and Forests, aimed at empowering herder communities to shape their future. Recognizing that herders nationwide face similar drivers of change, including socio-economic factors and the impacts of climate change, the BYF emphasizes the need for collective and united action among yak herders and various stakeholders involved in highland research and development. Currently, BYF is in the process of preparing a five-year strategy that will provide valuable guidance and direction for multi-sector engagement and partnerships, intending to revive and sustain the diminishing yak farming practice in Bhutan.

**KEYWORDS:** cooperative, farmers, federation, highland, yak

### INTRODUCTION

Yaks (*Bos grunniens*) are native species to the Himalayan range and the Qinghai-Tibetan Plateau, thriving at altitudes ranging from 2,500 to 6,000 meters above sea level, in a cold, semi-humid climate (Wangda, 2018). In Bhutan, the communities of the high-altitude areas are comprised of sedentary farmers and nomadic pastoralists (Ura, 1993). However, the majority of yak herders are transhumant pastoralists who move with the yaks to higher altitudes in the summer and migrate to lower altitudes when temperatures become extreme. Similarly, yak herders in Nepal also practice both sedentary farming and transhumance pastoralists (Paudel, 2018).

Yaks are primarily raised for their milk products, meat, transportation, and fiber. Additionally, yak dung is used as fuelwood for cooking by the nomads. Typically, yaks are raised under a free-ranged system in the high mountains, where the air, water, and pasture are free from pollution. Therefore, their products are considered organic and natural, opening many untapped opportunities to uplift the economy of yak herders. Despite low yield, yak milk is appreciated for its fat content.

Yaks are widely distributed across the Hindukush Himalayan Region (HKH), stretching from China in the north, India in the south, and Nepal in the west. China counts the highest yak population in the region, followed by Mongolia and Bhutan. According to the livestock census of 2020, Bhutan had a yak population of 40,897. Yaks are distributed across 11 highland districts and 27 blocks within Bhutan. Thimphu district has the highest yak population (10871), while Samdrup Jongkhar has the lowest (235). Among the blocks, Lingzhi has the highest yak population (3908), while Lauri has the lowest (16).

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In general, both the number of yaks and yak herding households are declining in the country due to inadequate feed supply during cold winter, wildlife predation, limited market for yak products, and limited policy support (Dorji et al., 2020). Recognizing these ongoing issues, the Department of Livestock 2018 initiated the concept of the Bhutan Yak Federation (BYF) to support the highlanders. Consequently, 12 yak cooperatives were established in seven districts within three years (2019-2021). Currently, BYF comprises 268 males and 203 females, representing 1,067 yak-rearing households. The goal of BYF is to promote yak farming as a vibrant and sustainable program. Therefore, this study focuses on the status of the BYF, examining its roles and functions in-depth. Thus, Lingshi and Sephu yak cooperatives under Thimphu and Wangduephodrang districts were identified as study areas.

### METHODS

To conduct this study, a methodology that involved literature reviews using search engines such as Google Scholar, Research Gate, Research for Life, and Science-hub platforms were employed. These platforms allowed us to access a wide range of relevant sources. Additionally, both qualitative and quantitative data were collected from the relevant sources.

The study area is marked with green colour, pink for yak cooperatives, and blue for the highland blocks on the Bhutan map (Figure 1)

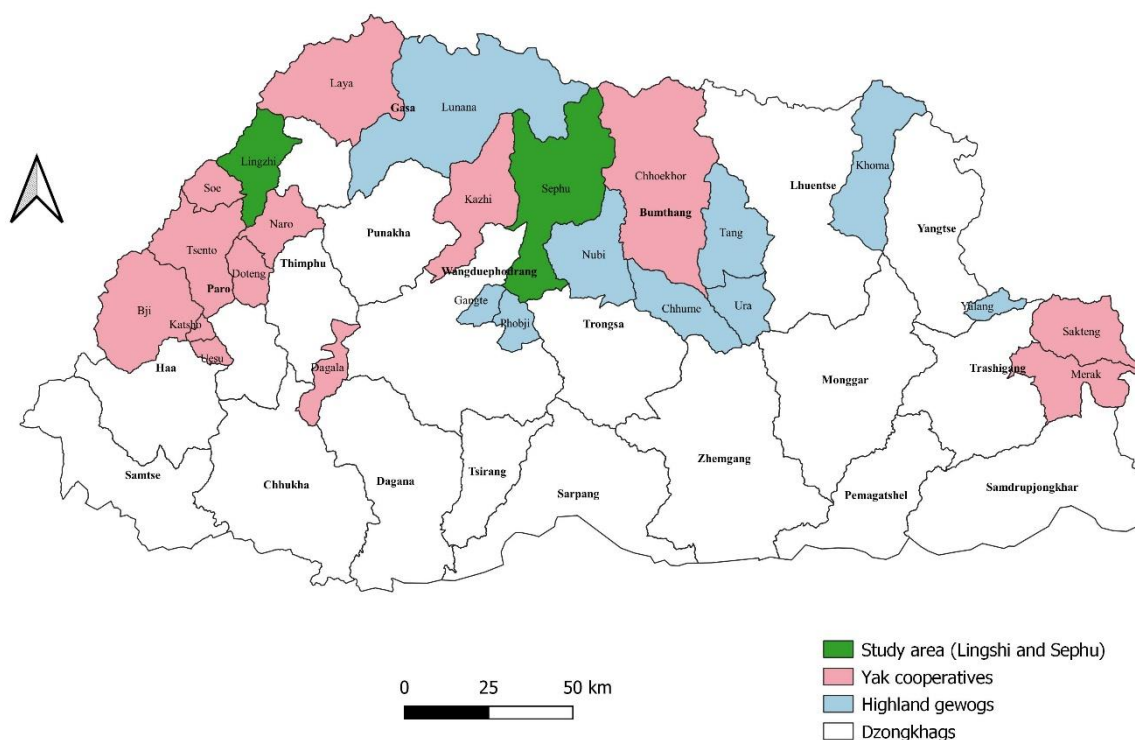


Figure 1. The study area

### Primary data

The primary data for this study were collected from 40 yak herders from Sephu and Lingshi blocks under Wangduephodrang and Thimphu districts. Then, using a semi-structured questionnaire, the information from the individual yak herders was collected via phone interviews. The questionnaire consisted of 28 questions, covering various aspects such as demographic information and factors related to yak farming. Each interview lasted approximately 20 minutes and in total, it took approximately 40 hours to complete all 40 respondents to gather detailed information.

To ensure the accuracy and reliability of the data, a few Livestock Production Officers and the block in charge were consulted for data validation. Additionally, the existing chairman of the Bhutan yak federation was intimated to obtain updates on the ongoing activities and prospects of the BYF.

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## **Secondary Data**

The secondary data for this study was obtained from two main sources: the Department of Livestock and the National Statistics Bureau. These sources provided valuable information regarding population dynamics, milk production, and the number of livestock-rearing households. Those data served as a foundation for analysis and allowed us to examine trends related to the yak population.

## **Data analysis**

The collected data were processed, organized, and analyzed using Microsoft Excel, 2013. Filtering and compilation techniques were employed to prepare the data for analysis. A pivot table, a simple statistical tool, was used to examine household information, including parameters such as gender, family size, and age. The quantitative data were presented in the form of tables and charts.

For geographical representation and mapping of the study areas, Quantum Geographical Information System (QGIS), version 3.18 Zurich, was used. This software allowed us to create a visual representation of the study areas, enhancing the understanding of the spatial distribution of the yak cooperatives, highland blocks and other relevant features.

## **LITERATURE REVIEW**

### **Importance of yak**

The yak, renowned as the most ecologically sustainable genetic resource of the Himalayas, holds immense importance in providing livelihood support and nutritional security for highlanders, especially impoverished tribal farmers residing in remote hilly regions (Smith et al., 2021). These tribal communities practice yak rearing within the pastoral system, taking advantage of the unique ability of yaks to adapt to high-altitude environments where conventional livestock husbandry and or crop production are unviable (Jones & Wang, 2018). Yaks exhibit exceptional resilience, enduring severe cold temperatures (up to – 50°C), navigating snow-bound steep hills and thriving in hypoxic conditions (Brown, 2019). As versatile animals, they contribute to multipurpose facets of livelihood, offering milk, meat, fiber, dung and other household essentials (Gupta, 2020). Consequently, the well-being of yak rearers is intricately tied to these animals. Traditionally, yaks are raised under a free-ranged system in pristine highland areas characterized by unpolluted air, water, and pasture (Wang & Li, 2022). The organic and natural products derived from yaks hold significant potential for uplifting the economy of yak herders. Therefore, yak husbandry presents untapped opportunities that can be harnessed through collective efforts and scientific interventions, paving the way for further development in this field (Li, 2019).

### **Yak Population dynamics**

In 1997, the livestock census counted 3,37,900 yaks in nine districts of Bhutan (Gyamthso, 1996). However, the yak population drastically dropped by 2,97,003 in the last two decades. Despite this decline, the yak population remained relatively stable over the previous five years (2015 to 2020), fluctuating around 40,000 (Figure 1). Table 1 provides a comparison of the number of yak rearing households in 2016 and 2020. In 2020, there is a slight increase yak population with a slight decrease in yak rearing households. In 2016, the study observed 29 blocks, whereas, in 2020, the number of blocks was reduced to 27. Based on the linear forecasts, it is predicted that the yak population will continue to remain stable with a slight increase in the coming years. This stability could be attributed to the initiatives and motivation provided by the BYF. As of 2020, the average household and yak population stood at 38 and 1414, respectively.

In 2017, Nepal reported 48,875 yak population, including yak crossbreds with 6235 households rearing yaks (Nepal Livestock Statistics, 2017). In India, there were 24. 7 % decrease in yak rearing households in 2019 compared to 2012 with a recorded number of yaks declining from 77,000 in 2012 and 58000 in 2019 (Indian Livestock Census, 2020).

The declining trend in the yak population in the Himalayan region is generally attributed to limited access to essential services such as motorable roads, and reliable electricity, as well as limited economic activities. Moreover, the scarcity of grazing resources during freezing winter is considered a key factor contributing to the decline (Dorji et al., 2020; Wangchuk & Wangdi, 2015).

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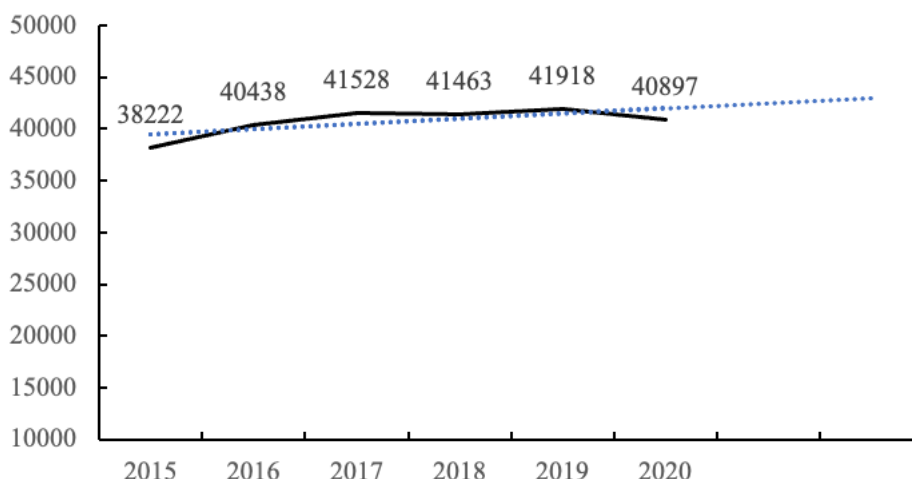


Figure 2. National yak population trend from 2015 to 2020 over six years

Table 1. Household information of yak herders in a country

Year	2016	2020
Total blocks	29	27
Households	1104	1078
Total yaks	40438	40884
Maximum households (Merag)	244	244
Minimum households (Lauri)	1	2
Average households	38.07	39.93
Standard deviation in households	58.07	58.9
Standard deviation in the number of yaks	1464.72	1459.43

### *The decline in yak populations and yak herders*

Wangdra (2018) reported a decline in the yak population in the Himalayan region including Bhutan, India, and Nepal. In India, there were 132,000 yaks in 1977 and 51,000 in 1997 based on the livestock census while in Nepal, the yak and yak hybrids population was reported as 65,980 yaks in 2013 and it is believed that the yak population was around 200,000 in 1961. These indicate a significant decline in the yak population and herders over the years. Bhutan also experiences a similar trend of decline in the number of yaks and yak herders. The livestock statistics in 2006 recorded a yak population of 52,911, which dropped to 40,897 in 2020, reflecting a decrease of 12,014 yaks over 14 years.

### *Shrinkage of grazing areas*

Rangelands serve as the primary source of grazing for yaks. However, these rangelands are currently experiencing various forms of degradation due to a lack of management interventions. Rangelands are used on a free-for-all basis without management practices or regulations, and the prohibition of the traditional practice of rangeland burning since the 1970s has led to the proliferation of unpalatable shrubs species and reduced grazing land available for yaks (Chophyel, 2009).

In the traditional yak husbandry system, the transhumance form of management predominates and in this system yaks experience weight loss due to inadequate fodder during the winter. However, compensatory growth occurs during the summer months, when they have access to alpine pastures with abundant fodder. To overcome the challenges of weight loss and low milk production during winter, future efforts focus on developing low-cost feed technologies to improve yaks' productivity throughout the year, irrespective of the season (Indian Council of Agricultural Research, 2015).

### *Gid Diseases*

Coenurosis, commonly known as gid, is caused by a tapeworm called *Taenia multiceps*. It is a disease that affects small ruminants worldwide and particularly large ruminants like yaks in the Himalayas. Gid primarily affects young yaks below three years of age, and infected animals exhibit circling movements with the head tilting towards the tapeworm cyst on the cerebral surface of the brain. Wangdi & Wangchuk (2021) conducted a study on the practices of yak herders in managing Coenurosis in the Laya administrative block of Bhutan and found that Gid has negative economic implications for the herders.

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### *Local institutions for sustainable yak management*

In Nepal, pastoralists in the community have formed groups and civil associations comprising of 11 to 12 members. These associations function as local institutions and organizations responsible for governing rangeland management, including transboundary rangelands, as well as livestock production, particularly yak, at the local level. The members of these associations serve as leaders, key decision-makers, and representatives of the entire community. Civil associations are self-identified groups of individual households with common interests or resources such as livestock, crops, or forests and make decisions specific to their interests. During the migration period, the yak association assumes the responsibility of determining grazing places and herd movement times.

These two sets of local organizations, the groups and civil associations, have a more significant influence on pastoral communities than governmental organizations and political institutions in terms of rangeland management and cattle production. Despite the limited institutional support for sustainable rangeland management and livestock production, these local institutions are actively engaged in guiding local people to access, comprehend, and apply the policies and techniques related to rangeland management and livestock production that have been designed by policymakers and professionals (Wangda, 2018).

## RESULTS

### *Information on Sephu and Lingshi block*

Sephu block lies between 2300 to 3500 meters above sea level and is considered one of the most significant blocks in Wangduephodrang district of Bhutan. It comprises Buso-Zeri, Rukubjee, Longtoed, Bumilog, and Nakha. The block is equipped with basic amenities such as electricity, rural water supply, farm road, and telecommunication. It is home to 331 households with a population of 1550 people, who are known as Sephups. They speak a local dialect similar to *Mangdip*, the local dialect of the Trongsa district. The villagers believe that the name of the block, Sephu, originated from Dorji Lingpa, a great *terton* who discovered a golden dragger (*Phub*) from a lake called *Omta Tsho*. Since then, the place has been known as Sephu, a village, meaning "village with a golden dragger".

Lingshi block, located in the Thimphu district of Bhutan, lies between 3800 to 4200 meters above sea level within Jigme Dorji Wangchuk National Park. It is situated in the northwestern part of Bhutan and is approximately a four-day walk from the nearest road points. The block consists of five sub-blocks: Chebesa, Gangyul, Shayul, Mesayul, Zangpo, and is home to 11 villages. Lingshi has 75 households with a population of around 700 people. The residents, known as *Lingship*, speak a local dialect similar to the national language. Despite its remoteness, basic facilities such as electricity, Basic Health Unit (BHU), primary schools, and telecommunication are available to the residents.

### *Agriculture and Livestock farming at Sephu and Lingshi*

The weather pattern in the area is conducive to agriculture and livestock farming, making it an ideal source of income. Large-scale cultivation of potatoes and cabbages is carried out for commercial purposes. In addition to these crops, *cordyceps* and dairy farming also contribute significantly to the community's livelihood. Vegetables such as cauliflower, spinach, broccoli, and carrot are primarily grown for self-consumption. The community of Longtoe and Longmoe sub-block specializes in knitting various bamboo products, including baskets, strainers, and butter containers known as "*cipa*". These products, along with dairy and yak items, are sold to generate income.

Dairy and yak herding have been a longstanding tradition in the community. Cattle are mainly raised for milk production as well as butter and cottage cheese. As per livestock Statistics 2019, the community owned 2517 Yaks, 631 Nublang-Thrabum, 451 Jersey Cross, 111 Brown Swiss, and 11 Jatsha and Jatsham. To support dairy farming in the community, the Wangdue livestock sector has established two milk processing units in Rukubjee and Busa sub-blocks, aiming to assist local farmers. Five herders in the community own both yaks and dairy cattle. During summer, the cattle are allowed to graze in the pasture freely, while in winter, they are confined to nearby pasture lands.

In Lingshi, all the communities rely on yak herding and spend the freezing winter in their villages. During the summer months (May to October), at least two family members move to high-altitude rangelands and live in temporary makeshift huts with their yaks. The main crops cultivated in their kitchen garden are potatoes, turnips, and radishes. The yaks are mainly raised for butter, cheese, hair, dung, and meat, and as draft animals. Previously, male yaks were slaughtered for meat purposes until 2015, but due to religious beliefs, this practice is no longer allowed in the community. However, meat from accidental and natural deaths of yaks is still consumed. Horses are also kept for transportation purposes and serve as an additional source of income.



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### Socio-cultural values in Sephu and Lingshi

In Sephu, yak and sheep farming used to be practiced two decades ago, but sheep farming gradually declined over time. As a result, they now purchase wool from their neighboring blocks like Gangtey and Phobjikha to process wool products. The wool is processed and used for knitting their unique attire known as *Chaka Yathra*, as well as hats called *Nyengachem*, traditional dress (Gho and Kira, Kara), mats, and ropes. The Wangduephodrang district livestock sector is actively working to revive sheep farming in the area.

They celebrate a distinctive festival called *Wangdi Goenpa Tshechu* once in three years, usually held in January and lasting for three days. During the festival, women wear their unique Chaka Yathra attire, while men wear *Charee Gho* woven from wool. However, there has been a noticeable decline in this tradition and fewer people now value these cultural practices, according to the elder man named Ap Sithup, who is a cooperative member.

Similar to Sephu block, Lingshi also celebrates the annual *Tando* festival, usually held in April. This festival serves as an occasion for family members to come together. Unlike the Wangdi Goenpa Tsechu, the Tando festival is celebrated for a single day. Lingshi benefits from the tourism sector, particularly from portering services, as two high mountains trail pass through this area.

### Bhutan Yak Federation

The Bhutan Yak Federation (BYF) was established in 2019 at the national level to advocate for the rights of yak herders. Its primary goal is to promote, preserve, and protect yaks, rangelands, and the livelihoods of herders through sustainable yak farming practices. The federation also facilitates the collective marketing and processing of yak products, as well as the procurement of and production of farm inputs. Currently, the BYF consists of 12 yak cooperatives comprising 408 highlanders (268 males and 202 females) across the nation, as shown in Table 1.

However, this study specifically focuses on two yak cooperatives located in Sephu and Lingshi blocks, which fall under the Wangduephodrang and Thimphu districts. The selection of Lingshi and Sephu was based on convenient sampling and direct interaction with the herders. In Sephu, there are 55 yak-rearing households, all of whom are members of yak cooperatives. In Lingshi, out of 72 yak herders, only 53 are included in yak cooperatives. For this study, interviews were conducted with 20 yak-rearing households from Sephu and Lingshi to gain insights into the current status of yak farming and the role played by the BYF.

### Socio-demographic characteristics of Sephu and Lingshi yak cooperatives

The study covered 12 villages and involved a total of 40 respondents, comprising 19 females and 21 males from the yak cooperatives of the Lingshi and Sephu blocks. The respondents had an average age of 37, ranging from the youngest at 21 to the oldest at 57, with a median age of 35. The majority of the respondents in both blocks were found to be illiterate, accounting for 70% of the total.

In terms of family size and number of yak herders, Lingshi had slightly higher averages compared to Sephu. The average family size was 4.9 in Lingshi and 4.7 in Sephu, while the average number of yak herders was 2.5 in Lingshi and 2 in Sephu.

Sephu block benefits from its connection to the motorable road, providing opportunities for additional activities. On the other hand, Lingshi is located far from the urban areas and is officially a four-day walk from the Thimphu districts.

### Income sources of respondents

The study revealed that the primary source of income for the highlanders in Lingshi and Sephu is yak farming. Milk and its products are mainly used for household consumption, and any surplus is sold to generate income, similar to the finding reported by Dorji et al. (2020).

In Lingshi, the yak cooperative households own an average of 19 milking yaks, producing around 1.5 liters per day/yak and a total of 2513 litres over five months. However, during the winter season, they do not milk their yaks due to harsh weather conditions and limited grazing resources.

On the other hand, the yak cooperatives in Sephu block own an average of seven milking yaks, producing approximately one litre per day/yak and a total of 2371 litres over nine months. Due to a comparatively lower elevation (ranging from 2300 to 3500 meters above sea level), the herders in Sephu are able to milk their yaks for a longer duration compared to Lingshi, where the altitude is higher (4,613 masl).

In Lingshi, herders provide supplementary feed to their yaks during winter, including concentrated feed (karma feed), wheat and maize flour, oil, mustard oil cake, and salt. On average, they spend about Nu.36250 annually on feed resources. In Sephu, the highlanders milk their yaks for nine months and spend Nu. 26450 on yak feed resources each year.

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The highlanders expressed that the income generated from the sale of yak products is only sufficient to cover the expenses of buying feed resources.

**Table 2. Annual income generated from the yak products in two yak cooperatives of Lingshi and Sephu (n = 40)**

Mean	Milch	Milk yield(l)	Butter (kg)	Income generated	Hard and soft cheese	Income generated	Total income	milk yield /day	milking duration	milking time
Lingshi	19	2513	36.15	18075	159	39750	57825	1.5	5	summer summer and
Sephu	7	2371	23.09	11545	117	29250	40795	1	9	winter

\*Farmgate price for butter and cheese @ Nu. 500 and Nu. 250

The primary source of income for the highlanders is the harvesting of "*Cordyceps Sinensis*", a valuable fungus. In Lingshi, the average annual income generated from the Cordyceps harvesting was Nu. 0.18±0.07 million (mean ±SD), with ranges varying between 0.40 million and 0.35 million. Similarly, in the Sephu block, the highlanders earned Nu. 0.12±0.04 million, with income ranges of 0.30 million and 0.03 million. Additionally, they also earned extra income by collecting medicinal plants and providing portering services. However, the highlanders' economy has been adversely affected in the past two years due to the COVID pandemic.

### SPECIFIC YAK FARMING ISSUES AT SEPHU AND LINGSHI

#### *Inadequate grazing resources*

Highlanders face challenges in their yak production systems due to competition with wildlife and other livestock grazing resources. Inadequate grazing land results in feed shortages, especially in during the winter from October-March. The scarcity of forage has negative consequences for the yaks, including poor nutrition, slow growth, health-related problems, and reduced fertility. One of the main issues identified by the respondents is the ownership of Tsamdro, which refers to traditional grazing land. It is crucial to address this issue and restore the rights of domiciled herders to access and utilize Tsamdro. Resolving this matter would help alleviate the grazing land constraints faced by the highlanders.

#### *Limited policy support*

Several studies on yak farming have consistently highlighted the lack of a clear policy for the sustainable use of rangeland as a significant issue. This has caused inconvenience for yak herders and contributed to the deterioration of rangeland quality (Ura 1993; Gyamtsho 2000; Banjade 2008; Derville and Bonnemaire 2010; Dorji, 2020). Despite more than two decades having passed, the policy regarding rangeland utilization remains unchanged, and the issues persist.

Since the enactment of the 1969 Bhutan Forest Act, there have been several policy changes that have affected the utilization of rangeland resources. For example, in 2007, the parliament approved and recommended that all yak herders, regardless of the number of livestock they possess, should receive their share of grazing land. They were also supposed to have the option to rent or lease out their portion of grazing land. However, in reality, these provisions were not implemented as intended.

Before the Forest Act of 1969, yak herders used to practice periodic controlled burning of rangelands to promote the growth of palatable fodder species and suppress unpalatable ones. However, this practice was prohibited by the Forest Act of 1969 and the Land Act of 1979, resulting in the proliferation of unpalatable species such as juniper, rhododendron, and berries. This has led to a decline in the production of palatable grasses (Gyamtsho 2002) which was also highlighted by the respondents of Lingshi and Sephu as rangeland issues.

#### *Yak diseases*

Gid (*Coenurosis*) is a prevalent disease primarily affecting yaks in Bhutan. It is characterized by the loss of balance in the animals. This condition usually occurs in young yaks while they are grazing on grasses contaminated by dog tapeworms (Dorji, 2016; Wangdi & Wangchuk, 2021). Gid disease is a significant health issue in both the Lingshi (70%) and Sephu (65%) blocks, leading to a negative impact on yak production and calf mortality. Consequently, it poses a threat to the overall yak population. Despite the respondents' efforts to deworm their yaks twice a year, the yaks still suffer from gid disease.

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In addition to Gid disease, plant and water poisoning also pose health risks to yaks in the Sephu area. Overmore, other animal diseases are emerging among yaks, such as Foot and Mouth Disease (FMD), which typically affects cattle in lowland areas. In 2020, a considerable number of yaks in the Sephu block (35%) were affected by FMD.

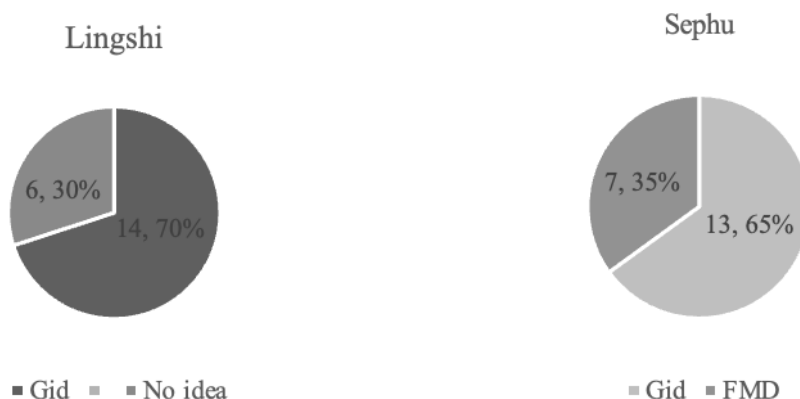


Figure 3. Animal diseases

### Wildlife predation

Wildlife predation on yaks is a significant issue faced by herders, and they do not receive any compensation for the loss of their animals. Annually, highlanders experience losses of yaks due to wildlife predation. Table 3 provides detailed information on the yak losses in both blocks in 2020, along with the estimated monetary value of these losses. The value is determined based on the bodyweight of the individual yaks, which ranges from Nu. 0.09 million and 0.1 million. The Sephu block has a higher number of yaks lost to wildlife predation compared to the Lingshi block. The Sephu block lost yaks worth of Nu. 15.75 million, while the Lingshi block lost yaks worth Nu. 13.32 million. Wildlife predation mainly occurs during the winter season when the health of the yak deteriorates due to a lack of feed resources. This could potentially be a reason for the declining interest in yak farming.

Furthermore, feral dogs in the Lingshi block are causing problems by attacking young. One of the respondents mentioned that the increased number of feral dogs is attributed to the construction of Lingshi dzong, which led to inconvenience to the highlanders. Wild dogs, tigers, bears, and leopards are the main predators of yaks in these blocks. The fear of losing their essential food and fuel resources during the cordyceps collection season adds to the challenges faced by the herders in the Sephu block.

Table 3. Yak lost to wildlife predation

In,2020 (n:40)	Lingshi	Value of yak (in million)	Total value loss
Total yak loss	148	0.09	13.32
Mean	7.4	0.67	
Mode	6	0.54	
	Sephu		
Total yak loss	175	0.09	15.75
Mean	8.75	0.79	
Mode	8	0.72	

### Inbreeding in the yak population

The respondents express their belief that the deterioration of yak quality is attributed to unsystematic breeding practices. They highlight the lack of access to high-quality breeding bulls as a contributing factor. The absence of a nationwide exchange of bulls exacerbates the issue, resulting in inbreeding and a decline in breed quality. However, it is worth mentioning that the Department of Livestock has already drafted yak breeding strategies and guidelines to address these concerns.

### Limited product diversification and marketing

Product diversification and marketing pose significant challenges for transhumant pastoralists, primarily due to their constant migration, especially during the summer months from May to mid-October). This constant movement hampers their ability to establish stable marketing channels. Additionally, the lack of modern processing facilities and cold storage equipment further

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hinders maintaining product hygiene and quality. Moreover, the long distances from accessible roads create additional challenges for the highlanders in reaching markets and customers.

Nevertheless, it is interesting to note that highlanders of Sephu block, comprising 20 respondents, do not face issues in marketing their products. But they are experiencing a shortage in production, indicating a potentially higher demand for yak-based products.

### **PROSPECTIVE ABOUT BHUTAN YAK FEDERATION**

#### ***Reviving Yak culture and values***

According to the respondents of Lingshi and Sephu yak cooperatives, the unique and age-old culture and traditional practices are rapidly fading as the older generation grows older, and the younger generation shows little interest in taking up these practices. For instance, the art of weaving *Bja* and other yak wool products is on the verge of disappearing. However, BYF is actively working towards the revival and promotion of yak culture and values, as stated by the chairman. In particular, the highlanders of Sephu have benefited greatly from joining the BYF as it provides a platform for discussions and exchanges of views among the 12 Yak cooperatives members. Furthermore, the members can advocate for policy and investment support and promote yak farming as a vibrant and sustainable enterprise. Recently, the Sephu yak cooperatives received support from the government, including 13 breeding bulls, milking equipment, and pasture development seeds. According to the chairman, such support services serve as a motivation for highlanders to continue their involvement in yak farming. Similarly, the respondents from Lingshi Yak cooperatives shared similar stories, noting that the government provided five breeding bulls in 2019 to improve yak breeds and address issues of inbreeding.

#### **Empowering Bhutan yak herders through the Bhutan yak federation**

Challenges and issues impede the sustenance of highland communities and yak farming, the Yak Federation provides a platform for yak herders to innovate, optimize utilization, and manage the vast rangeland resources. Some of the opportunities enshrined in the 5- year strategy of BYF include:

- Facilitating cooperation, collaboration, and coordination among mountain communities to achieve their common shared goal of prosperity.
- Introducing Payment for Ecosystem Services (PES) for the protection of upper water catchment areas and the sustainable utilization of vast mountain resources.
- Diversifying yak products and targeting niche markets for highland products, such as yak milk products and wool products, to high-end hotels and markets within and outside the country.
- Developing and promoting yak-based ecotourism, including activities like a homestay, rich mountain tradition, cultural festivals, resource center and offering yak riding experiences. This aims to generate income and create job opportunities (such as porters, cooks, and guides) for the youth in highland communities, in collaboration with the Tourism Council of Bhutan, and forging relationships and networks both within and outside the country.
- Involving the private sector in the promotion and development of yak enterprise.
- Conserving, promoting, and exchanging yak genetic resources for breeding within and at the regional level to enhance genetic quality.

### **STRATEGIC INTERVENTIONS OF BHUTAN YAK FEDERATION – TOWARDS REVIVING YAK FARMING GOVERNMENT**

Bhutan's rural development approach has traditionally been centered around a government-driven supply model, which has sometimes resulted in dependency among the beneficiaries. The establishment of BYF offers an alternative model that can serve as a crucial community institution, partnering with the government and development agencies to sustain highland research and development interventions. The following strategic interventions are highlighted as ways to contribute to the sustainability of yak farming systems in Bhutan.

#### ***Creation of enabling science-based policy and legal frameworks for the operation and sustenance of mountain communities' livelihood through yak federation***

The BYF serves as a dedicated institution with a well-defined governance system that represents all the yak herders of Bhutan. It operates under a two-tier system, consisting of primary cooperatives at the district level and a national-level federation. The cooperative/federation is governed by appropriate legislation, rules, and regulations that ensure effective governance within the framework of the Cooperative Act of Bhutan.

## Can the Bhutan Yak Federation Revitalize Waning Yak Herders' Enthusiasm and Rejuvenate the Declining Yak Farming in Bhutan

### **Protect and promote traditional, socio-cultural practices to support livelihood and enhance mountain community vitality**

Highland communities inhabit mountainous regions, where they lead unique traditional lifestyles, while harmoniously coexisting with the highland environment. In addition to their reliance on these areas for their livelihood, yak husbandry holds socio-cultural importance for these communities. The BYF shall:

- i) Showcase mountain culture and traditions on various platforms, establishing connections with the Bhutan Tourism Council.
- ii) Recognise and promote local customary systems and knowledge that are integral to yak husbandry.
- iii) Support the establishment of yak festivals in all highland dzongkhags (districts) and localities.
- iv) Encourage yak-based ecotourism to showcase the traditional and cultural practices of highlanders, the magnificence of yaks, and the beauty of mountain rangelands.

### **Enhance the resilience of yak farming communities to the environment and climate change**

Rangeland grazing serves as the primary source of fodder grasses for the yaks. However, the adverse effects of global warming and climate change have led to the degradation of rangeland in various forms. Additionally, inadequate rangeland management and insufficient support from governmental institutions have further exacerbated the depletion of fodder grass species.

In light of these challenges, the BYF proposes revisiting specific policies concerning rangeland burning. Controlled burning practices can contribute to the sustainable utilization of rangeland and enhance animal productivity. Furthermore, the BYF aims to introduce best practices in rangeland management, including co-management concepts, through south-south cooperation.

To address acute winter fodder shortages, the BYF will also pilot the use of technologies such as complete feed blocks. These innovative approaches will help alleviate the challenges faced by yak herders during the winter season.

### **Strengthen and maintain national and international institutional linkages**

The BYF should focus on developing connections with other cooperatives and federations at the national and international levels to facilitate the exchange of information, experiences, and expertise. In order to achieve this, the BYF should:

- i) Foster transboundary cooperation and maintain regional and international institutional partnerships to exchange expertise and technological knowledge among the involved parties.
- ii) Forge alliances with countries facing similar challenges and neighbouring nations in collaboration with relevant stakeholders.
- iii) Establish a national supply chain network that connects yak producers to consumers with consumers across the entire country.

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## Development of Website-Based Interactive E-Modules towards Volleyball Learning in Junior High School Students



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**ABSTRACT:** Website-based learning is one form of learning modification needed to maximize the teaching and learning process. This study aims to: (1) Develop website-based interactive E-Module learning media on volleyball learning materials for grade VIII students of SMP Negeri Megang Sakti, Musi Rawas Regency, South Sumatra Province. (2) Knowing the feasibility of website-based interactive E-Module learning media on volleyball learning materials for grade VIII students of Megang Sakti State Junior High School, Musi Rawas Regency, South Sumatra Province. The research conducted was research and R&D development Validation trials were carried out by 3 expert lecturers. 2 expert lecturers in the field of material and 1 expert lecturer in the field of media. The small-scale test in this study used a sample of 15 students taken from students of SMP Negeri Sumber Rejo, a large-scale test using a sample of 30 students taken from students of SMP Negeri Pagar Ayu. This research was conducted in Musi Rawas Regency, South Sumatra Province, with random sampling and data taken from Megang Sakti State Junior High School, Musi Rawas Regency, South Sumatra Province. The data analysis techniques used are quantitative and qualitative analysis. The results of this study show: (1) Development of website-based interactive E-Modules on volleyball learning materials for grade VIII students of SMP Negeri Megang Sakti through five stages, namely the analysis stage, design stage, development stage, implementation stage, and evaluation stage; (2) the feasibility of the website-based interactive E-Module media is assessed based on: (a) The material and media validator aspect obtained an average value of 4.43 and a percentage of 89%, which means that it is included in the very feasible category. (b) Small trials obtained an average score of 4.55 and a percentage of 91% which means that it is included in the very decent category. (c) Large trials obtained an average score of 4.45 and a percentage of 89% which means that it is included in the very decent category. (d) Product feasibility test obtained an average value of 4.52 and a percentage of 90% which means that it is included in the very feasible category. Thus, it can be concluded that the website-based interactive E-Module learning media on volleyball learning materials is feasible to use.

**KEYWORDS:** E-Module Interactive, Volleyball, Website-Based, Student.

### I. INTRODUCTION

Education is one of the forums that has an important role in the progress of the nation and state from all aspects. Education means a dynamic force in the life of each individual, which affects physical development, mental development, social development, as well as the development of morality. Education is a gradual, programmatic, and continuous activity [1]. The meaning of education itself according to Ki Hajar Dewantara is the effort to advance the ethics, mind, and body of children, in order to advance the perfection of life, namely living and living children in harmony with nature and society. Education is the most important thing, because good and quality education allows a person to live anywhere [2].

When discussing education, of course, it is closely related to activities and also the teaching and learning process. According to Wahdaniah [3] the increase in potential and development that occurs in students is obtained through a continuous learning process. Learning is a change in behavior that occurs in individuals, who previously could not become able. The teaching and learning process carried out by teachers and students is usually carried out at school or through direct interaction without any intermediary media and of course with teaching media, textbooks, teaching modules and others that have been prepared by teachers in accordance with the learning model used.

Physical education is a pedagogical process aimed at improving the morphological and functional state, mental and volitional aspects of the human body, improving the quality of knowledge, skills, abilities, achieving high results in work and homeland defense [4]. Currently, physical education learning is still underdeveloped because textbooks are lacking and learning packaging

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is still less innovative, making students less enthusiastic in the learning process of physical education lessons [5]. According to [6] currently traditional teaching concepts can no longer meet the needs of physical education achievement optimally, new creativity and innovation are needed in learning so that the quality of physical education learning can be carried out properly and can meet the needs of educational achievements that are growing day by day.

Teachers are required to be creative and innovative in packaging physical education learning with various concepts and media that can be used so as to make students more optimal in learning. The more developed the times in the era of globalization, the more facilities and infrastructure that can support the physical education learning process. Technology can act as a platform to encourage creative learning and innovative teaching [7]. In the digital era like today, many things are digital-based where technology is increasing and the education system can be ready to face challenges in the digital era itself [8]. The use of digital technology to support the teaching and learning process in the world of education has grown rapidly following the times, especially physical education learning can also be supported by digital technology in the teaching and learning process. Digital technology can cause increased interest in learning students such as physical education learning [9].

The success of an educational goal depends on how the teaching and learning process experienced by students. A teacher besides being required to be careful in choosing and applying teaching methods that are in accordance with the goals to be achieved, is also able to choose media that is in accordance with the material to make it easier to deliver the material, for that media is needed that can cause the attraction of students in absorbing the material. One of the media that can be developed is a learning module in the form of an electronic module (E-Module).

Interactive E-Module is one type of teaching material module that can be used in physical education learning. According to [10] who said that learners need to develop independent learning, critical thinking, and effective use of information technology. Using E-Modules can help teachers and students in the implementation of the teaching and learning process. Because of the advantages when using E-Module media during the teaching and learning process, the E-Module will display interesting content and material in it, such as students will be spoiled with displays containing animations, images, audio visuals, videos, and quizzes that can trigger strong motivation and desire for students to learn. It is proven by pre-existing studies, that this E-Module is suitable to be used as a learning medium that can help teachers and students in the teaching and learning process at school and outside school because this E-Module can be accessed anywhere using media tools such as mobile phones, laptops, computers, and other media tools provided there is internet access.

Based on observations made by researchers at SMPN Megang Sakti District on the learning process, it was found that many teachers as teachers still use conventional methods and media in teaching teaching teaching materials, especially in PJOK subjects in Volleyball Learning Materials. As a result of students learning using conventional media in the form of printed modules and lecture-style methods to make the material presented boring. The disadvantage is that if students are not equipped with interesting modules from the material presented, the effect is that students will have difficulty repeating the material in the learning process.

The print module is less able to present a material that uses simulation. Another observation at SMPN Megang Sakti is the weakness of the print module, one of which is that it is less able to display some material using simulations, so that students become bored and monotonous because they are still presented with analog even though everywhere is spoiled with digital products. Print modules make the learning process less interesting, less interactive and yet able to convey historical messages through images and videos.

The results of interviews with several class VIII students, PJOK learning so far tends to use lecture methods and ordinary printed modules in the learning process, so that students feel bored, have difficulty understanding conventional modules and are less motivated during the learning process. Therefore, researchers want to develop conventional modules into interactive E-Modules that aim to make students become motivated and willing to read material supported by audio visuals, animations, images, videos, and quizzes. The development of electronic module prototypes as an independent learning resource in learning PJOK subjects Volleyball Learning material, it is hoped that the learning orientation will no longer be teacher centered but lead to a student-centered learning system.

Competence of graduates who are able to develop a concept of visual communication in digital media. The focus of development in this research lies in the form of presentation of independent learning materials in which there is material management, display and learning control. Learning resources in the form of E-Modules are expected to attract the attention and interest of students so that they are motivated to learn, and also with the existence of learning resources in the form of E-Modules will help teachers in delivering learning material. And another reason that strengthens researchers to develop conventional modules to E-Modules is because SMPN Megang Sakti is also still netted in the 3T area (Underdeveloped, Frontier, and Outermost), but even though it is still netted in the 3T area for the internet network there is already a 4G network, therefore researchers intend to develop this technology-based media so that in the learning process can also take advantage of advanced technology at this

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time. The novelty of this research is the creation of a website-based interactive E-Module learning media development product in which there is volleyball learning text material and is supported by audio visuals, animations, images, videos, and interactive quizzes to support the learning process of students in PJOK learning which refers to the physical education learning curriculum of sports and health that is currently in effect at the Nefgri Megang Sakti Junior High School class VIII education unit i.e. curriculum 2013.

### II. MATERIAL AND METHOD

This research is a development research (research and development) means that this research is product-oriented research. Research and development methods are methods used to produce certain products and test the effectiveness of those products. Research and development in learning is a process used to develop or validate products used in education and teaching.

The method in this study uses the ADDIE model (Analyze, Design, Development, Implementation, Evaluation). This model was chosen because it is very often used to describe a systematic, instructional approach. This development can be interpreted as an effort to expand where to bring a situation or a situation in stages to a more perfect or more complete situation with a better situation [11].

This E-Module learning development procedure uses the development procedure proposed by [11]. The development procedure is divided into 5 steps, namely (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation with the ADDIE model.

#### 1) Analysis

##### a) Problem Analysis

At this stage, researchers make observations and observations to schools to find problems that have been complained by students in volleyball learning. This is done by conducting interviews with most grade VIII students to find out the learning difficulties faced in PJOK subjects based on the level of material difficulty, how to teach teachers, and supporting media used by teachers when teaching. In addition, researchers also conducted questions and answers directly to teachers teaching PJOK subjects at SMP Negeri Megang Sakti to find out the difficulties of students in understanding the materials in PJOK subjects seen from the teacher's view and the grades obtained by students.

##### b) Material Analysis

Based on the results of interviews conducted with PJOK subject teachers at SMP Negeri Megang Sakti, it was found that volleyball material had a more difficulty level felt by students. According to observations, most students have difficulty understanding the components in the basic volleyball technique. In addition, the thing that makes volleyball material difficult is because of the many basic techniques that must be memorized by students, monotonous learning (still in the form of lectures and demonstrations from teachers), and the absence of innovative learning media so that learning seems boring and not interesting to follow. So it is necessary to analyze the basic volleyball technique material according to the grade level.

##### c) Needs Analysis

Needs analysis conducted with a series of observations in class VIII to determine the needs of teaching materials as learning resources, student needs, and teacher needs. The results of this needs analysis will be used as reference material needed in the formulation of concepts or designs in the development of website-based interactive E-Module learning media on basic volleyball technique material.

##### d) Student Character Analysis

Researchers analyze the character of students to find out how students are studied in the classroom, how students learn, what obstacles students face when learning. Analysis of student character is carried out so that the learning media to be developed can be in accordance with the needs of students in learning.

##### e) Project Development Analysis

The project management plan can be tailored to the development needs of each research. In this research and development, the things that are managed are development costs, development time and product specifications produced.

##### f) Data Analysis

Expert validation Data analysis expert validation carried out is to provide questionnaires to media and material experts to get suggestions and input that become a reference in improving website-based interactive E-Module learning media at SMPN Megang Sakti school, Musi Rawas Regency, South Sumatra Province.

#### 2) Design

Design is the second stage of the ADDIE model. At this stage, clarification is needed about the specifications of the product designed, so that the product can achieve the expected goals. The design stage is closely related to designing assessment

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instruments, designing observation sheets, to the process of making E-Module media to be used. After that, the researcher prepares an evaluation instrument and its evaluation procedure.

### 3) Development

After the planning stage, the researcher carries out the next stage, namely the development stage. In the development stage there are 3 activities as follows:

#### a) Product manufacturing

Developers collect supporting materials such as animation, sound, video, images and others. Then developed learning media in the form of a website using the Heyzine Flipbook application.

#### b) Validation

In validation, there is material expert validation and media expert validation. The validation is divided into two, namely: Material expert validation and Media expert validation.

#### c) Revision

After the validation process, the product is revised based on comments and suggestions from material experts and media experts to make it attractive and in accordance with the needs of students.

### 4) Implementation

Implementation is a real step to implement the learning system that we are creating. That is, at this stage everything that has been developed is installed or set in such a way as to suit its role or function so that it can be implemented. The implementation or delivery of learning materials is the fourth step of the ADDIE learning system design model.

### 5) Evaluation

Evaluation is the process of seeing whether the learning system being built is successful, in accordance with initial expectations or not. Actually, the evaluation stage can occur at any of the four stages above. The evaluation that occurs in each of the four stages above is called formative evaluation, because the purpose is for revision needs. Evaluation is the final step of the ADDIE learning system design model. Evaluation is a process carried out to provide value to the learning program. The subjects involved in this study were 2 material experts (2 lecturers of Physical Education, Faculty of Sports and Health Sciences, Yogyakarta State University), 1 media expert (lecturer of Physical Education, Faculty of Sports and Health Sciences, Yogyakarta State University). The small-scale trial in this study was grade VIII students of Sumber Rejo State Junior High School which amounted to 15 students, while for large-scale trials there were 30 students of grade VIII SMP Negeri Pagar Ayu and feasibility trials were 30 students of grade VIII of SMP Negeri Megang Sakti. Data collection is carried out in several ways. The following data will be collected and data collection techniques used: a) Observation, 2) Questionnaire, 3) Documentation. The analysis of the data obtained in this study is the analysis of product services from experts and students as users. Learning using media and learning resources is carried out in accordance with the competence of the material that has been prepared. After the implementation of the Interactive E-Module, product analysis was carried out which developed data analysis techniques.

## III. RESULT AND DISCUSSION

### Result

The results of the finished development will be tested which validation to find out in terms of the feasibility of the product that has been made, for this product test itself is divided into 2 categories among them: Material validation test and media validation test. All of this aims to find out whether or not this product is feasible to be used in schools to help students in the learning and teaching process in the learning process in the current era which is very rapid development. The results of the development of interactive E-Module learning media in PJOK subjects for junior high school students are then validated by material experts and media experts to determine the quality of the products developed. The results are described as follows.

**Table 1. Results of media development**

Validation	Number of Values	Average Values	Percentage	Category
Material Validation I	70	4,64	93%	Very Worth It
Material Validation II	67	4,46	89%	Very Worth It
Media Validation	63	4,20	84%	Proper
<b>Final grade</b>	<b>4,43</b>	<b>89%</b>	<b>Very Worth It</b>	<b>Final grade</b>

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Judging from the table above, the final validator assessment of the website-based Interactive E-Module developed has an average value of 4.43 and a percentage of 89% is in the very decent category. These results can be concluded that the development of the Interactive E-Module for PJOK learning volleyball material developed can be used with a little revision and tested.

### Product trial results

This stage is when media trials that have passed the validity test (product feasibility) from media experts and material experts (revised). The trial conducted was aimed at grade VIII students of State Junior High School in Megang Sakti District. This stage can also be part of the implementation stage, this stage is divided into two, namely:

#### 1) Small Group Trials

The researcher asked respondents to answer the items of small-scale feasibility test research instruments on the interactive E-Module of volleyball learning materials. The results of product trials for small groups obtained scores obtained from the response questionnaire of grade VIII students with a total of 15 respondents, namely the average score was at 4.55 and obtained a percentage result of 91%, which means that it is in the category of very feasible to be used as learning material and understanding volleyball material.

#### 2) Large Group Trials

Researchers asked respondents to answer the items of large-scale feasibility test research instruments on the interactive E-Module of volleyball learning materials. The results of product trials for large groups obtained scores obtained from the response questionnaire of grade VIII students with a total of 30 respondents, namely the average score was at 4.45 and obtained a percentage result of 89%, which means that it is in the category of very feasible to be used as learning material and understanding volleyball material.

## DISCUSSION

The purpose in this research and development is to produce an Interactive E-Module based on volleyball learning websites that is suitable for use as teaching materials for physical education, sports and health class VIII. "The electronics module or commonly abbreviated as E-Module is one proof of the influence of the development of science and technology in the era of globalization" [12]. This is used by the author in providing solutions to the needs of teaching materials that are more creative, innovative, effective and efficient, of course, in achieving learning objectives. The output of this research and development is the Interactive E-Module based on the PJOK learning website, volleyball game material which refers to grade VIII of Junior High School. This E-Module is in the form of a heyzone flipbook that can be accessed online by anyone who has the E-Module link. In this E-Module, there are several features that are tailored to the needs of students, namely there are learning text materials, audio visuals, images, learning videos, and interactive quizzes. The average result of validator assessment of the Interactive E-Module developed is an average value of 4.43 and a percentage of 89% which is in the very decent category. These results can be concluded that the Interactive E-Module for PJOK learning volleyball material developed can be used with a little revision and tested. The next process after revising according to suggestions and input from validators is to conduct small-scale and large-scale trials. The results of the product trial, the number of scores obtained from the questionnaire of the response of grade VIII junior high school students to the feasibility of interactive E-Modules, namely on a small scale, got an average score of 4.55 and a percentage of 91% was in the category of very feasible for use in the learning process of grade VIII junior high school PJOK. And on a large scale getting an average score of 4.45 and a percentage of 89% is in the category of very feasible to be used in the learning process of PJOK grade VIII SMP. After small-scale and large-scale trials, there are no significant obstacles so that improvements are not made to the product and research can proceed to the next stage. After conducting small-scale and large-scale trials, then conducted feasibility tests on 30 grade VIII students of SMP Negeri Megang Sakti. At this stage, students are asked to respond and fill out a questionnaire that has been prepared to assess the feasibility of the Interactive E-Module product for PJOK learning volleyball material for grade VIII of SMP Negeri Megang Sakti. The results of the product feasibility test, the number of scores obtained from the questionnaire of the response of grade VIII students of SMP Negeri Megang Sakti to the feasibility of the interactive E-Module, namely getting an average score of 4.52 and a percentage of 90% being in the category of very feasible to be used in the learning process of class VIII PJOK SMP Negeri Megang Sakti, Musi Rawas Regency, South Sumatra Province. In a research result in 2022 entitled Development of Application Website-Based E-Modules on Class XI Wave Material, it is stated that the results of research on the development of web-based E-Modules are very feasible to use. Through expert validation, an average score for media experts was obtained of 89.19% with a very good category, while material validation obtained an average score for material experts of 81.27% with a very good category and in the validation of student responses, an average value of 76.53% was obtained with a good category value. So that the results of product validation obtained an average percentage value of 82.45% with a very decent category. Then the web-based E-Module application is very feasible to be used in physics learning. And in another study stated



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that the E-Module also received positive comments from students because it was able to present a better display of the E-Module than the module [13]. The existence of this website-based Interactive E-Module can help students in the learning process and can make it easier for students to understand the material both independently and at school because there is an interactive element so that students do not experience boredom in learning, making it easier for teachers to manage lessons as additional administrative media. After conducting a series of research and development of website-based interactive E-Modules on volleyball material, PJOK learning can be disseminated and used in the PJOK learning process, volleyball material for students of SMP Negeri Megang Sakti, Musi Rawas Regency, South Sumatra Province.

### IV. CONCLUSION

So that from the results of the study, it can be concluded that the development of E-Interactive Module learning media uses the ADDIE method, which includes 5 steps, namely the Analysis, Design, Development, Implementation, and Evaluation stages as well as product feasibility tests. In addition, the E-Interactive Module learning media product is worth using. The expert assessment of material one received an average score of 4.64 and a percentage of 93%, falling into the very decent category. The expert assessment of material two received an average score of 4.46 and a percentage of 89% was included in the very decent category. And the assessment of media experts gets an average score of 4.20 and a percentage of 84%, falling into the decent category. It can be concluded that the average results from the aspect of material and media validators obtained an average value of 4.43 and a percentage of 89%, which means that it is included in the very decent category. The learning media Interactive E-Module "Very feasible" is used as learning teaching material on volleyball game material, using a feasibility test with an average score of 4.52 and a percentage of 90%.

### ACKNOWLEDGEMENTS

The author would like to express his deepest gratitude to all students who have been willing to complete this research. It's a journey of growth, discovery, and collaboration, and it wouldn't have been possible without the support, guidance, and contributions of many individuals and entities. As a big expression of gratitude, I express my appreciation to those who have played an important role in making this effort a reality.

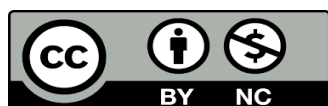
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## Analysis of the Dominant Aspects of Libero's Basic Skills



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**ABSTRACT:** The physical fitness parameters of players in the libero position need to be measured to maintain performance with training that is appropriate to the needs of supporting movement performance as a libero. The aim of this research is to analyze the basic skills of Libero players. This is quantitative research that uses skill tests as a research instrument. The test instruments used include grip strength tests, sit-and-reach, running, push-up, sit-up, back-up, and vertical jumps. The research population is volleyball players in the position of libero in the Volleyball Student Activity Unit at Surabaya State University. The sampling technique used was a total sampling of 12 students. The data was analyzed descriptively and quantitatively to determine the average skill characteristics of Libero players. The research results show that the average sit and reach test measurement result for male players is 37.93 and for female players is 40.70. The average left-hand grip strength test result for men is 39.43 and for women is 26.8. The average right-hand grip strength test result for men is 41.29 and for women is 28.40. The average result of the push-up test for men is 34.29, and for women, it is 38.80. The average result of the sit-up test for male players is 44.14, and for females, it is 54.00. The average back-up test result for male players is 76.00, and for women, it is 76.00. The average running test result for men is 9.81 and for women is 9.64. The average result of the vertical jump test for men is 55.14 cm, and for women, it is 48.80 cm. The results of this research are useful for trainers as a consideration in preparing special physical training programs that suit the characteristics of liberos.

**KEYWORDS:** exercise, libero, basic skills

### INTRODUCTION

Player performance in a competition is influenced by many factors, both technical and tactical (Martínez et al., 2023). In order for players to show a high level of performance, training plans must be prepared according to the player's needs and followed by individual athletes (Altundağ, 2021). Player performance is a unity between aspects of skill quality and physical and psychological quality. Good mastery of basic skills, supported by the player's physical qualities, will produce the player's best performance when competing. Meanwhile, good mastery of basic skills, good physical quality, and good psychology will also be able to maintain the consistency of the player's game when competing. It is important for a trainer to have continuous data regarding these three aspects to develop training programs, both short-term and long-term. Evaluation in sports is fundamental to the training process of every athlete on a team and is a very necessary support for coaches (D'Isanto et al., 2019). In an effort to achieve optimal sports performance, monitoring, predicting, and improving sports performance are important elements that must be considered by a coach (Slovák et al., 2023). The coach will arrange the player's technical, tactical, and physical training according to the character of the player's individual position. Volleyball matches consist of various techniques for applying special volleyball skills, namely serving, receiving, sets, attacks, blocks, and defense (Inkinen et al., 2014). The motor characteristics of players in certain positions will be different from those in other positions. Players at various positions differed significantly in terms of height and all three somatotype components, but no significant differences were found in body mass, body mass index, or any of the physical performance variables measured. Players with different performance levels differed significantly in both anthropometric variables and physical performance. Generally, middle blockers are taller, more ectomorphic, less mesomorphic, and endomorphic, while liberos are shorter, less ectomorphic, more mesomorphic, and endomorphic than other position players. Players who were more successful in all positions had lower body mass indexes, were less mesomorphic and endomorphic, and were more ectomorphic than less successful players. More successful players demonstrate better lower body strength, speed, agility, and upper body strength (Milić et al., 2017). Anthropometric profile and motor skills are the dominant factors that influence the performance of volleyball players (Mielgo-Ayuso et al., 2015; Nasuka, 2020). The important skills possessed by a volleyball player are supported by basic movement skills, or motor skills. Volleyball is a net sport that involves the realization of fast and explosive movements. The

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demands of the game require players to have a high level of strength, physical fitness, and technical skills. Outside hitters are players who play on the left side of the net and in the middle of the back row of the court and specialize in receiving and attacking. Middle blockers are players who play in the middle of the back row, where their role is replaced by the libero player. Opposite is a player who specializes in spikes from the front row or at the back. Setters are players who play on the left side of the net and back row and have specific tasks in attack settings (Medeiros et al., 2014).

Libero plays an important role in the team's defense from opponent attacks. The role of the libero is very special compared to other players thanks to his ability to act as the team's main defender when playing (Marra et al., 2019). The libero has the dominant task of fighting to be able to receive the ball when there is a ball attack from the opponent and directing the setter to carry out the attack (Yumi et al., 2022). The libero position is used to maximize defensive capabilities and ball reception, allowing the team to remain competitive in matches by increasing the chances of gaining points through good attacks. The parameters of whether a libero is good or not can be seen from the ability to receive serves both at the bottom and top and in defense (Sujarwo & Purnomo, 2020).

The libero's skills are so important nowadays that even a club can officially play two liberos in a game. Apart from that, the libero's skills also have an impact on the level of confidence of other players in playing the game. However, libero is still not the main choice for prospective players compared to spiker and tosser. In fact, the selection of Libero seems to be the last choice for those who are not included in the spiker or setter player plot. So the selection system used to select a libero is considered not selective according to the skill requirements, which are proven to be very high. The physical fitness parameters of libero players also need to be measured to maintain performance with training that suits the needs of supporting movement performance as a libero.

## METHOD

This is quantitative research that uses skill tests as a research instrument. The test instruments used include the grip strength test, sit and reach, running, push up, sit up, back up, and vertical jump.

The research population is volleyball players in the position of libero in the Volleyball Student Activity Unit at Surabaya State University. The sampling technique used was a total sampling of 12 students who were members of the Volleyball Student Activity Unit at Surabaya State University in the libero position.

The research procedure begins with field observations; namely, the researcher analyzes the skills of volleyball players, especially liberos. Next, the researcher looked for references and literature studies related to libero skills. The researcher designed a skills test as a research instrument. Researchers collected data using skills tests on the sample. Researchers collect data and then analyze it.

**Table 1. Categorization of Research Results**

No	Category	Criteria
1	Low	$X < M - 1SD$
2	Medium	$M - 1SD \leq X \leq M + 1SD$
3	Hight	$X > M + 1SD$

Data is analyzed quantitatively and descriptively, namely by a method that helps to describe and summarize data in a constructive way, referring to statistical descriptions to help understand the details of the data. Next, the data is presented descriptively, and the average skill characteristics of the Libero players can be seen.

## RESULT AND DISCUSSION

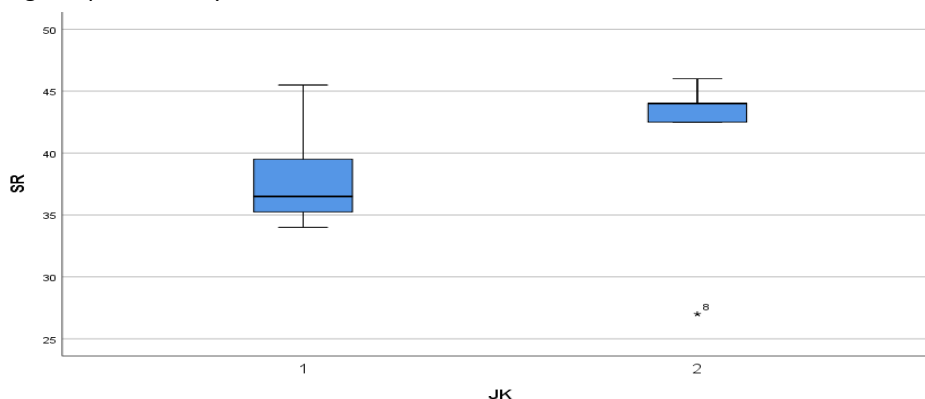
Data on the age, weight, height, and body mass index of the sample are as follows:

Code	Sex	Age	Height	Weight	BMI
X1	L	19	168	64	22.68
X2	L	19	165	55	20.20
X3	L	18	166	51	18.51
X4	L	18	173	63	21.05
X5	L	21	163	60	22.58
X6	L	23	163	59	22.21
X7	L	20	150	56	24.89
X8	P	22	155	55	22.89
X9	P	18	164	68	25.28

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X10	P	19	160	50	19.53
X11	P	18	150	56	24.89
X12	P	19	163	50	18.82

The results of measuring sample flexibility with the sit-and-reach test are as follows:



**Figure 1. Sit and Reach Plot**

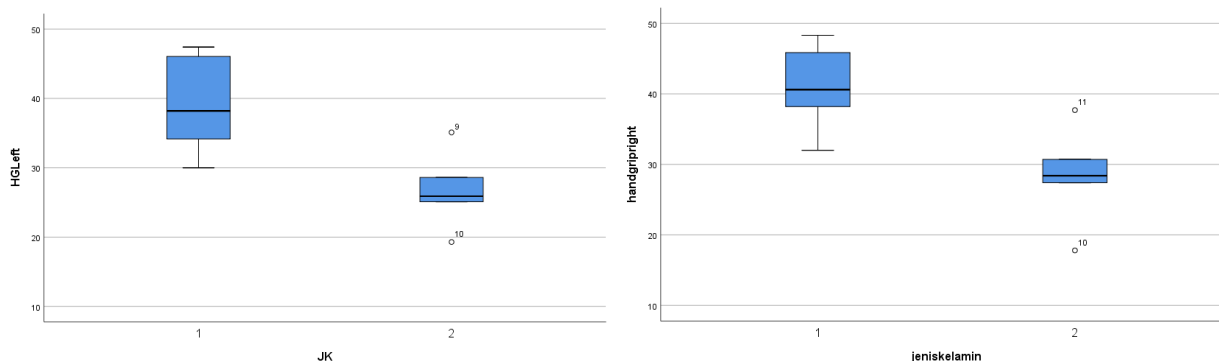
The average sit-and-reach measurement result for male players is 37.93 with a standard deviation of 4.344, and the average measurement result for female players is 40.70 with standard deviation 7,759. The average sit-and-reach test measurement result for women (2) is better than the average sit-and-reach test measurement result for men (1).

**Table 2. Sit and Reach Test Category**

No	Category	Formula	Male	Female
1	Low	$X < M - 1SD$	$X < 33.586$	$X < 32.941$
2	Medium	$M - 1SD \leq X \leq M + 1SD$	$33.586 \leq X \leq 42.274$	$32.941 \leq X \leq 48.459$
3	High	$X > M + 1SD$	$X > 42.274$	$X > 48.459$

Sit and reach test results are measured in centimeters or inches. Positive values indicate the extent to which a person can reach or exceed the reference point on the measuring device. A negative value indicates the extent to which a person has not reached the reference point, which means there is no movement of the body curve at all from the initial position, namely sitting with the body upright and both legs straight forward. Flexibility in some joints can be increased to a certain degree through exercise. Exercises are performed with stretching as a common exercise component to maintain or improve flexibility. A player's perfection in skill and technique is highly dependent on effective training methods and several appropriate exercises for the development of general strength and power, flexibility, coordination, and agility for optimal performance (Aslam, 2017).

The results of measuring hand strength using the grip strength test are as follows:



**Figure 2. Grip Strength Test Plots**

The average left-hand grip strength test result for male players is 39.43 with a standard deviation of 7.342, while for female players it is 26.80 with a standard deviation of 5,746. The average grip strength test result for the right hand of male players is 41.29 with a standard deviation of 5.961, while for female players it is 28.40 with a standard deviation of 7.161.

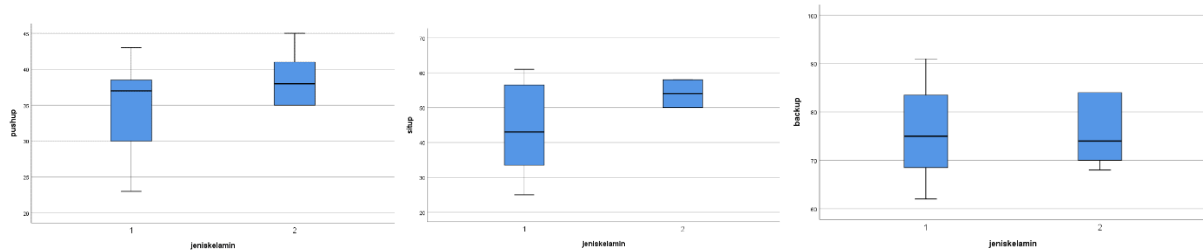
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**Table 2. Grip Strength Test Categories**

No	Category	Formula	Male		Female	
			Right hand	Left hand	Right hand	Left hand
1	Low	$X < M - 1SD$	$X < 35.329$	$X < 32.088$	$X < 21.239$	$X < 21.054$
2	Medium	$M - 1SD \leq X \leq M + 1SD$	$35.329 \leq X \leq 47.251$	$32.088 \leq X \leq 46.772$	$21.239 \leq X \leq 35.561$	$21.054 \leq X \leq 32.546$
3	Hight	$X > M + 1SD$	$X > 47.251$	$X > 46.772$	$X > 35.561$	$X > 32.546$

Grip Strength Test results are measured in weight units. Higher values indicate better grip strength. The grip strength test score can provide information about the muscle strength of the hands, wrists, and upper arms. Test results can be used to monitor changes in physical strength over time as a result of the exercise performed. Volleyball players predominantly hit the ball with high speed and a long range of motion (Tooth et al., 2023). Hand strength is one of the determinants of whether the ball is hit fast, hard, or not.

The results of measuring abdominal muscle strength using push-up, sit-up, and back-up tests are as follows:



**Figure 3. Push Up, Sit Up and Back Up Test**

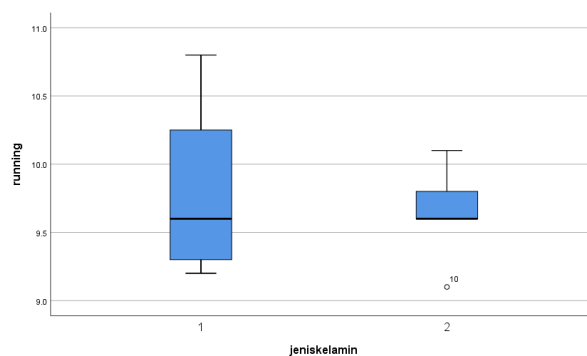
The average result of the push-up test for male players is 34.29 with standard deviation is 6.969, while the average push-up test for women is 38.80 with the standard deviation is 4,266. The average result of the sit-up test for male players is 44.14 with standard deviation is 14.334 while the average sit-up test for women is 54.00 with standard deviation is 4,000. The average back-up test result for male players is 76.00 with a standard deviation of 10.708, while the average back-up test for women is 76.00 with a standard deviation of 7,616.

**Table 3. Categories Of Push-Up, Sit-Up, And Back-Up Tests**

No	Category	Formula	Male			Female		
			Push-Up	Sit-Up	Back-Up	Push-Up	Sit-Up	Back-Up
1	Low	$X < M - 1SD$	$X < 27.321$	$X < 29.806$	$X < 65.292$	$X < 34.534$	$X < 50.00$	$X < 68.384$
2	Medium	$M - 1SD \leq X \leq M + 1SD$	$27.321 \leq X \leq 41.259$	$29.806 \leq X \leq 58.474$	$65.292 \leq X \leq 86.708$	$34.534 \leq X \leq 43.066$	$50.00 \leq X \leq 54.00$	$68.384 \leq X \leq 83.616$
3	Hight	$X > M + 1SD$	$X > 41.259$	$X > 58.474$	$X > 86.708$	$X > 43.066$	$X > 54.00$	$X > 83.616$

The results of the push-up, sit-up, and back-up tests can provide an overview of strength, endurance, and physical fitness.

The results of the running test measurements are as follows:



**Figure 4. Running Test**

The average running test result for male players is 9.81 seconds with a standard deviation of 0.672, while the average running test result for women is 9.64 seconds with a standard deviation of 0.365.

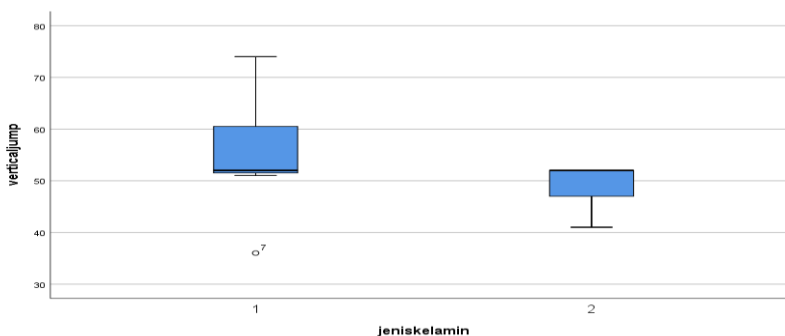
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**Table 4. Run Test Categories**

No	Category	Formula	Male	Female
1	Low	$X < M + 1SD$	$X < 10.482$	$X > 10.005$
2	Medium	$M - 1SD \leq X \leq M + 1SD$	$10.482 \leq X \leq 9.138$	$9.275 \leq X \leq 10.005$
3	Hight	$X > M - 1SD$	$X > 9.138$	$X < 9.275$

It is important to build physical performance in terms of strength, speed, endurance, flexibility, neurological abilities, and more. Agility plays an important role in many types of sports, including volleyball. This means that volleyball players need to focus on improving agility. Agility training can be done in various ways (Junpalee et al., 2023). Coaches need to monitor agility levels and have data periodically (Paška et al., 2023).

The results of the vertical jump test measurements are as follows:



**Figure 3. Vertical Jump Test**

The average result of the vertical jump test for male players is 55.14 cm, with a standard deviation of 11.697 cm, while the average vertical jump test for women is 48.80 cm, with a standard deviation of 4,868 cm.

**Table 4. Vertical Jump Test Categories**

No	Category	Criteria	Laki-Laki	Perempuan
1	Low	$X < M - 1SD$	$X < 43.443$	$X < 43.932$
2	Medium	$M - 1SD \leq X \leq M + 1SD$	$43.443 \leq X \leq 66.837$	$43.932 \leq X \leq 53.668$
3	Hight	$X > M + 1SD$	$X > 66.837$	$X > 53.668$

The standing vertical jump test is a test used to measure a person's ability to jump vertically from a standing position. This test is used to assess leg muscle strength and explosive power in the lower leg muscles. Volleyball is characterized as a ball game that requires biomechanical demands on the musculoskeletal system as well as a lot of neuromuscular coordination, speed, agility, and strength. Passing, setting, spiking, blocking, and serving the ball are basic movements in the game of volleyball that require the implementation of various vertical or horizontal jumps, as well as speed actions (Agopyan et al., 2018). The vertical high jump is considered an important criterion that influences the overall performance of volleyball players (Akalan et al., 2022; Bartol et al., 2022).

As a libero, horizontal jumps are predominantly used to hunt or chase an opponent's attack ball, which can slide in an uncertain direction. The libero must have excellent ball-receiving skills. They are not required to be tall and strong, but they need more experience in reading the game correctly as a basis for decision-making, which is supported by aspects of agility for the execution of decisions that have been taken (Palao et al., 2014). Libero has unique characteristics compared to other players in terms of anthropometry. The libero does not show certain characteristics, but in terms of physical characteristics, the libero must have speed, agility, flexibility, and body composition. The libero must receive the pass first and also defend the opponent's attacks from all directions and the uncertain speed of the ball. For this reason, the libero must be in a low stance. Short players such as liberos need less time to take a low-standing position than other players; in other words, short liberos have an advantage in this regard (Malla & Singh, 2022).

## CONCLUSION

The research results show that the average sit and reach test measurement result for male players is 37.93 and for female players is 40.70. The average left-hand grip strength test result for men is 39.43 and for women is 26.8. The average grip strength test



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result for men's right hand is 41.29, and for women, it is 28.40. The average result of the push-up test for men is 34.29, and for women, it is 38.80. The average result of the sit-up test for male players is 44.14, and for females, it is 54.00. The average back-up test result for male players is 76.00, and for women, it is 76.00. The average running test result for men is 9.81 and for women is 9.64. The average result of the vertical jump test for men is 55.14 cm, and for women, it is 48.80 cm. The results of this research are useful for trainers as a consideration in preparing special physical training programs that suit the characteristics of liberos.

Liberos need to have a responsive nervous system to respond quickly to changes in the direction of the ball. Speed and agility in movement are essential to enable them to be in the right position to make a reception or dig in on the ball. A good cardiorespiratory condition is essential because liberos are often involved in intense defense and moving quickly across the court. Muscle strength and endurance, especially in the leg and core muscles, are needed to support rapid and frequent movements and to withstand the physical stress of defense. Good balance and coordination help liberos maintain their body stability when performing complex movements, such as diving or moving laterally to dig into a low ball. Good flexibility in the major joints, especially in the hip and shoulder areas, can improve the libero's ability to reach the ball with optimal body posture. Liberos need to have a high level of sensory sensitivity to be able to anticipate the movement of the ball and decide on the right response in a short time.

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## The Effect of the two Handed Reverse HIT Training Model on Reverse HIT Speed and Accuracy in Hockey



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**ABSTRACT:** The aim of this research is to determine the training model for the two-one-hand reverse hit technique and the speed and accuracy of reverse hits in the game of hockey. Experimental research method with pre-test and post-test testing on one sample group. The samples in the research were athletes who were members of the Hockey Student Activity Unit and students who took hockey courses at Surabaya State University. Data collection techniques include testing punch speed and punch accuracy. The data analysis technique uses t-test statistical testing of test results before and after being given the training model. The research results show that the Sig. (2-tailed) speed is  $0.001 < 0.05$ , so it is stated that there is a significant difference in the speed of the two-handed backhand in the pre-test and post-test. The sig value. (2-tailed) speed is  $0.000 < 0.05$ , so it is stated that there is a significant difference in the two-handed reverse punch in the pre-test and post-test.

**KEYWORD:** training model, two handed reverse hit, speed, accuracy

### INTRODUCTION

Sports can change due to changes in the participant's physique or when participants test the limits of the sport's rules. As support for scientific analysis increases, the training system also continues to be improved to increase participation. Rules can be adjusted regarding cheating or professional errors, the number of players, substitutions, speed, or changing technology and equipment (Tromp & Holmes, 2011). One of the distinctive features of hockey rules is the possibility of unlimited substitutions, meaning there is no limit to the number of players who can be replaced at the same time or the number of times a player can be replaced along the field. during a match ((Linke & Lames, 2017). The distribution of matches over a certain period of time presents a complex challenge when planning the competitive demands of recovering from one match and preparing for the next. Each player has a unique stroke that can take on a different color when they start playing.

Hockey is a sports game played by two teams with the aim of getting as many goals as possible by putting the ball into the opponent's goal (Chaudhary et al., 2021). Field hockey is a physically and mentally challenging sport. Many movements and skills are involved, so a high level of physical and mental ability is required in the match (Abou-bakr & Mostafa, 2016). In the sport of hockey, there are three popular game categories, namely field hockey, indoor hockey, and ice hockey. As the name suggests, field hockey is played on a field measuring 47 meters by 94 meters using a synthetic grass-water-based system (Prasetyo Utomo et al., 2019).

Since the use of synthetic fields using water-based system technology, which has resulted in faster ball speeds, coupled with changes in regulations, both standard and mandatory, many changes have occurred in the game of field hockey, both in terms of program preparation. Training on the impact of changes in match times to the basic techniques that must be mastered by a player playing on a carpet court. This change has the consequence that the game of hockey is now very fast and thrilling from the start of the game until the game is finished (Shailesh Kumar & Mehrotra Akhil, 2015).

Several new techniques have begun to be introduced due to changes in this type of field (which of course cannot be done on grass fields), including the slap hit (Prasetyo Utomo et al., 2019), drag flick (Ibrahim et al., 2017), and new difficult techniques. mastered, namely reverse hit (Thiel et al., 2012), which consists of two-handed reverse hit (THRH) and one-handed reverse hit (OHRH) techniques. The two-handed reverse hit (THRH) and one-handed reverse hit (OHRH) techniques can be used for passing or shooting. In a game, the THRH technique is considered very effective for putting the ball into the goal because this technique can make the ball fly very quickly, both horizontally and upwards, without the goalkeeper being able to anticipate it properly. Even

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though the THRH technique is currently being used more and more often to score goals, in reality, this technique is difficult to master, especially for novice athletes, because there is no training model that can be used as a reference for training it. With the typical movements in the THRH technique, whether done statically or dynamically, it requires guidance so that it can be trained, especially for novice athletes, so that all the techniques in the game of hockey can be mastered well.

The push-and-flick method in the shooting zone needs to be applied during training (Antonov et al., 2020). Although this THRH technique is often carried out by an attacker, so far it seems to have been carried out haphazardly and by chance. This is proven by the many incidents in the field that only a few times hit the target, especially when done by novice athletes. If the ball hits the desired part of the stick, the ball will quickly fly to the target. However, what happens is that often the ball does not hit the contact area of the stick, so the results obtained are not as expected, namely that the ball does not exactly hit the contact area of the stick, the ball travels slowly, and the ball that is hit does not hit the specified target.

Each sport contains a number of special technical elements that an athlete must master, where the level of performance determines competitive success (Struzik et al., 2014). Physical fitness refers to an athlete's ability to perform successfully in their sport. Components of physical fitness include agility, balance, energy, speed, reaction time, and so on, which support a person's performance (Singh, 2018). In the game of hockey, a player's agility when breaking through an opponent is important. Agility is the ability to move the whole body quickly in various directions (Farley et al., 2020). Players will try to pass opposing players who are trying to block them with agility and good body balance so that they have the opportunity to get closer to the goal and try to score. Efforts to improve athletic performance can be done with a thorough analysis of the functional performance of movement characteristics (Ibrahim et al., 2017). A player's body size, which consists of age, height, and weight, has a significant influence on the player's performance (Rabia & Iqbal, 2022). So far, research in the sport of hockey has been dominated by studies related to physical conditions such as physiological changes during competition (Lin et al., 2023), physical training methods on athlete performance (Thiel et al., 2012), and types of injuries. hockey athletes and their handling (Mason et al., 2022; Van Vliet et al., 2022). Meanwhile, the development of training models that contain syntax (stages) for technical mastery has not received any attention at all. In reality, in the field, coaches actually need a standard model that can be used as a reference for training, especially beginner athletes. However, what has been happening so far is that the technical skills mastered by the coach are being given to the athletes. What the coach masters is what is given to the athletes. So athletes' skills in mastering the two-handed reverse hit technique are, of course, different. This research measures the results of implementing a training model that can be used as a guide for coaches and athletes to master this technique, which is known to be difficult. The training stages (model) are analyzed using biomechanics to train the reverse hit technique, which can be used by coaches to train this technique on novice athletes so that it is easier for athletes to master the technique being taught. From the description above, researchers have developed a training model for the two-handed reverse hit technique in the game of hockey. In this study, researchers examined whether there was an influence of the training model on the speed and accuracy of punches.

### METODE

Experimental research method with pre-test and post-test testing on one sample group. The samples in the research were athletes who were members of the Hockey Student Activity Unit and students who took hockey courses at Surabaya State University. Data collection techniques using punch speed and punch accuracy test instruments. The sample is given the opportunity to hit nine balls, and the time and score obtained are measured.

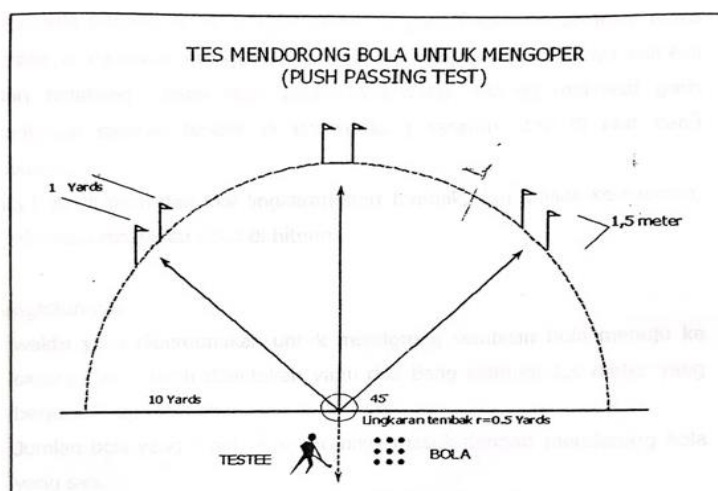


Figure 1. Pre test & Post test desain

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The data analysis technique uses the average t test statistic before and after being given the training model treatment. The collected data was analyzed using the average t test statistic before and after being given the training model treatment. To see whether there was any influence from the results of the treatment given in the form of a training model resulting from the development that had been carried out on the speed and accuracy of reverse hits in the game of hockey. The basis for decision-making is:

1. If the Sig (2-tailed) value is  $< 0.05$ , then there is a significant difference between the speed and accuracy of the two-handed reverse hit in the pre-test and post-test.
2. If the Sig (2-tailed) value is  $> 0.05$ , then there is no significant difference between the speed and accuracy of the two-handed reverse hit in the pre-test and post-test.

### RESULT & DISCUSSION

The research data was processed using SPSS with the following results:

**Table 1. Pre- and Post-Test Statistics**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Time Pretest	28.4727	41	6.03640	.94273
	Time Posttest	26.4507	41	5.46162	.85296
Pair 2	Score Pretest	2.76	41	2.034	.318
	Score Posttest	3.85	41	1.918	.300

The average pre- and post-test times have a difference of 2.022 seconds, whereas in the post-test, the average time needed to finish 9 balls is 26.4507, while the average pre- and post-test scores have a difference of 1.09 points higher than the pretest. These two things show that there is an increase in sample speed in performing two-handed reverse hits as well as an increase in accuracy scores.

**Table 2. Paired Samples Test**

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Time Pretest	-2.02195	3.54640	.55385	.90257	3.14133	3.651	40	.001
	Time Posttest								
Pair 2	Score Pretest	-1.098	1.411	.220	-1.543	-.652	-4.982	40	.000
	Score Posttest								

The table shows that the Sig value. (2-tailed) speed is  $0.001 < 0.05$ , so it is stated that there is a significant difference in the two-handed reverse hit speed in the pre- and post-test. The sig value. (2-tailed) speed is  $0.000 < 0.05$ , so it is stated that there is a significant difference in the accuracy of the two-handed reverse hit in the pre- and post-test. The two-handed reverse hit training model was declared effective as an alternative training program in an effort to increase the speed and accuracy of reverse hits. Field hockey is a sport that uses a stick and prioritizes stick speed and ball control (Thiel et al., 2012). Anthropometric and kinematic components have a significant influence on sports performance (Wali et al., 2023). The distance of the foot from the ball and the speed of the shot have a correlation with the results of the ball hit (Palaniappan & Sundar, 2018). The angle of the knee and elbow when hitting the ball affects the speed of the ball (Wali & Iqbal, 2022a). Ball speed can be increased by increasing the length of the stick, the speed of the stick, and reducing the left-right knee angle (Wali & Iqbal, 2022). Speed and accuracy in hockey can be improved at the same time (Manaf et al., 2021). The two-handed reverse hit training model can be a training program in an effort to increase the speed and accuracy of punches.

### CONCLUSION

The conclusion from the results of this research is that there is a significant difference in the accuracy of the two-handed reverse hit in the pre-test and post-test. The two-handed reverse hit training model is effective as part of a training program in an effort to



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increase a player's reverse hit speed and accuracy. Research data shows that there is an increase in the average sample speed and an increase in accuracy scores by implementing the two-handed reverse hit training model.

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## The Relationship Between Vitamin D Levels and Amh and Other Ovarian Reserve Parameters in Infertile Women



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**ABSTRACT: Objective:** Anti-Müllerian Hormone (AMH) is one of the biochemical markers used to predict the ovarian response and determine the size of the primordial follicle pool. Obtaining data on the presence of vitamin D receptors in the central and peripheral reproductive organs in recent studies is shown as proof that this vitamin plays an important role in reproduction. There are studies conducted in recent years showing that Vitamin D plays an important role in reproduction. We aimed to determine the possible connection and function of vitamin D by analyzing the AMH and other ovarian reserve parameters of the patients who applied to the infertility clinic.

**Material Methods:** This study was realized retrospectively, and the files of 284 patients with infertility problems were examined. The patients were evaluated in 2 groups; Group I, those with vitamin D levels below 20 ng/mL and those with II. The group was compared as those with vitamin D levels above or equal to 20ng/ml.

**Results:** Vitamin D level was determined as  $p < 0.008$  according to age among the groups, and  $p < 0.001$  in the summer season when analyzed according to the seasons. Estradiol (E2) level was observed as  $p < 0.013$ . In addition, no statistical significance was found between vitamin D and vitamin D according to AMH, follicle stimulating hormone (FSH) and antral follicle number (AFC) ( $p > 0.05$ ).

**Conclusion:** It was determined that there was no significant correlation between ovarian reserve parameters, especially AMH, FSH and AFC, and vitamin D levels of female patients who applied to our clinic due to infertility. Multicenter and prospective studies on Vitamin D, which is very important for both female and male infertility, need to provide new data for clinical applications.

**KEYWORDS:** Anti-mullerian hormone (AMH), antral follicle count (AFC), vitamin D, infertility, follicle stimulating hormone (FSH).

### INTRODUCTION

In recent years, evaluation of ovarian reserve in female infertility has become mandatory for determining treatment options. Some hormones (follicle stimulating hormone, estradiol), age of the woman and number of antral follicles are routinely used in the clinic to evaluate ovarian reserve by ultrasound examination in the early follicular phase. Evaluation of FSH and E2 low ovarian reserve has been used as a marker for years. However, sometimes when infertility occurs due to impaired ovarian function, it has been observed that the FSH level is also above the normal value<sup>1</sup>. Later, counting became easier by determining the number of follicles with high-resolution sonographic systems<sup>2,3</sup>. However, determination of AMH levels has gained importance in the evaluation of ovarian reserve. It is known as Müllerian inhibitory substance that a transforming growth factor -  $\beta$  family glycoprotein<sup>4,5</sup>. It has been reported that AMH, which is found in the serum of women with puberty to regulate early follicle development, is usually secreted by the granulosa cells of the ovarian follicles<sup>6</sup>. AMH inhibits the uptake of the first primordial follicle and decreases the sensitivity of pre-antral and antral follicles to FSH in ovary<sup>7</sup>. The AMH level remains constant throughout the menstrual cycle and can therefore be assessed on any day of the menstrual cycle<sup>6,8</sup>.

Vitamin D exerts its effect through the vitamin D receptor (VDR), which has been identified many female genital organs, especially in granulosa cells<sup>9</sup>. These divergent expressions of the VDR suggest a potential role for vitamin D in female reproduction and infertility<sup>10,11</sup>. Reproductive physiology has little known mechanism, it has been suggested that vitamin D has a direct effect on steroidogenesis. In some experimental studies, it has been reported that estrogen levels of VDR mutant mice are lower than those of heterozygous mice, resulting in impaired folliculogenesis<sup>12</sup>. In addition, vitamin D stimulates steroidogenesis in ovarian cells<sup>13</sup>.

## The Relationship Between Vitamin D Levels and Amh and Other Ovarian Reserve Parameters in Infertile Women

According to the data obtained, animal models were made showing that vitamin D affects AMH signaling during follicular development<sup>14</sup>, and the relationship between AMH and vitamin D was evaluated with studies conducted in human granulosa cells<sup>15</sup>. However, although the relationship between these molecules are consistent in the results obtained from basic research, although the data in clinical studies support the relationship between vitamin D and ovarian reserve, it is quite contradictory when compared to some studies<sup>3</sup> and in some studies, no significant relationship was found between these two important molecules<sup>16</sup>. Considering the unknowns of vitamin D in the female genital system, this study was conducted to evaluate the relationship between AMH and 25-OH-D vitamin, which are the most important ovarian reserve markers, especially in infertile women.

### MATERIAL AND METHODS

#### Study Design

The files of female patients aged 18-42 years who applied to the Gazi Yaşargil Training and Research Hospital infertility polyclinic between November 2019 and March 2021 were retrospectively analyzed. The relationship between 25-OH vitamin D, which is routinely checked in patients with ovulation induction, and AMH and ovarian reserve parameters was evaluated. Blood samples were taken for AMH, prolactin, FSH, E2 and LH, thyroid stimulation hormone (TSH), and 25 (OH) D vitamin. Moreover, detailed information about their age, body mass index (BMI), blood draw season, causes of infertility, any factors that could affect ovarian reserves and smoking status were recorded. This retrospective study was obtained from the data of patients who came to the Gazi Yaşargil Training and Research Hospital Infertile outpatient clinic.

**Inclusion criteria for the study;** All of the women included in the study between the ages of 18 and 42 with an infertility period longer than 12 months and a BMI <30 were included in the study.

**Exclusion criteria:** 1- Patients who had previously received vitamin D therapy, 2- patients who had undergone ovarian surgery and gonadotoxic treatment, 3- women who were taking medication due to systemic disease were excluded from the study.

#### Serum 25-OH vitamin D measurement

The best indicator to determine the vitamin D level is the 25(OH) vitamin D level in the serum. Although there is no consensus on the value of vitamin D, if the 25(OH) vitamin D level is less than 20 ng/mL, vitamin D lack, between 21 and 29 ng/mL 21 and 29 ng/mL, vitamin D deficiency, and if it is higher than 30 ng/mL it is higher than 30 ng/mL, it is considered an adequate level. Patients included in the study with serum 25 (OH) vitamin D levels <20 ng/mL were classified as first group, and those with ≥20 ng/mL were classified as second group.

#### AMH levels

To determine the level of AMH, 25-OH measurement was performed after collation regardless of the day of the menstrual cycle. The blood collected from the women participating in the study was taken into serum tubes; It was quickly centrifuged for 1 hour and the serum was separated and stored at -80°C. The AMH test was found to have a functional sensitivity of 0.16 ng/mL, with variable coefficients within and between tests of <6%.

#### Antral follicles

While blood samples were taken and serum AMH and vitamin D levels were determined, AFC was calculated on day 1-3 of the first cycle. The calculated AFC represented the total number of antral follicles in the 2 to 10 mm area in the right and left ovaries.

#### Statistics

All statistics were analysed using SPSS 20. 0 (IBM Corporation, Somers, USA). Descriptive properties of data in analysis; were presented as number (n) and percentage (%) for categorical data, mean ± standard deviation, median (1st and 3rd quartiles) for numerical variables. First of all, the conformity of the data to the normal distribution was determined. For this, histogram and Kolmogorov-Smirnoff Test were applied. Then Mann Whitney U test was applied for comparison of two independent groups (p<0.05).

### RESULTS

In the study were included a total of 284 patients, of which 264 (94.01%) patients had a vitamin D level <20 ng/mL (group I) and 17 (5.99%) had vitamin D ≥20 ng/mL (group II). detected on. All of the patients were selected among those who applied to the hospital for infertility treatment for the first time. The patients were 31.37±6.46 age of mean. The mean age of patients with a vitamin D value above 20 was found to be significantly higher (p<0.008).The mean body mass index was 25.82±3.18, according to smoking status, the number of group I patients was 114 smokers, 153 non-smokers, and group II patients were 7 smokers and 10 non-smokers. No significance could be determined according to BMI and smoking status. In addition, patients with low ovarian reserve, endometrioma, male factor, pcos and unexplained infertility applied to the clinic in the analysis made considering the causes of infertility. Among these, unexplained infertility leads with the highest average of 147 patients. It was determined that the relationship with vitamin D was not significant. The value of vitamin D is important according to the seasons. Vitamin D

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deficiency was less common in the summer period ( $p < 0.001$ ). Both demographic and other characteristics of the patients in the groups are presented in Table 1. Age, cause of infertility, antral follicle count (AFC), body mass index (BMI), serum FSH, prolactin, E2, AMH levels and 25(OH) vitamin D levels were summarized. It was determined that AMH level and AFC number were not significant with vitamin D ( $p > 0.05$ ). The mean E2 hormone level of patients with vitamin D value above  $\geq 20$  ng/mL (group II) was found to be significantly higher (Figure 1, Figure 2).

### DISCUSSION

In this study, we investigated whether there is any relationship between serum AMH and vitamin D and other ovarian reserve indicators in women who applied to IVF clinic for the first time due to infertility. According to the results of the study, there was no statistically significant difference in serum vitamin D levels between AMH and AFC. Most of the patients included in the study were in the region of vitamin D deficiency ( $< 20$  ng/ml) and we found that serum vitamin D level had no effect on ovarian reserve parameters. Vitamin D has an important role in reproductive system<sup>17</sup>. Vitamin D receptor (VDR) is found in ovary, endometrium, tuba uterina, placental and decidual cells and its expression increases during pregnancy<sup>18</sup>. It has been reported that there is a relationship between vitamin D and female infertility. Vitamin D supports follicular development and endometrial proliferation. As a result, vitamin D level was found to be associated with reproductive functions<sup>19</sup>. Although there are many studies examining the relationship between infertility and vitamin D, which is one of the indicators of ovarian reserve. In the few clinical studies that show vitamin D plays an important role in reproduction, there continues to be a correlation between adequate vitamin D levels in women with infertility and successful fertility treatments<sup>20</sup>. Studies show that there is a correlation between the in vitro fertilization method and these successful fertility treatments<sup>21,22</sup>. Since fluctuations in vitamin D levels are associated with exposure to ultraviolet light, they vary seasonally<sup>23,24</sup>. It is therefore reasonable to assume that vitamin D may affect ovarian function and AMH production<sup>16</sup>. Some researchers have observed a positive linear relationship between AMH and vitamin D<sup>3</sup>. In our study, we found that vitamin D levels differed significantly seasonally. However, no such difference was found between the level of AMH and vitamin D. It is also thought that high doses of vitamin D intake can rapidly increase the level of AMH in women of reproductive age. However, dietary vitamin D levels are claimed to be lower<sup>25</sup>.

The results were not replicated when compared with previous clinical studies that supported the link between vitamin D and AMH in previous studies. When we examine another study, especially Drakopoulos et al. in a cross-sectional, nested study, it was revealed that the relationship between serum AMH and 25(OH) vitamin D in women during the late reproductive period was minimal and a significant result was reached, and showed that there was no relationship in younger patients. When we consider another study, especially if we make an explanation for the data obtained in line with the results obtained by Drakopoulos, it would be correct to think that the data are retrospective and originate in order to provide the correlation in the comparisons between them<sup>26</sup>.

If we consider another study, in this study, especially women diagnosed and infected with HIV were included, and only patients with vitamin D data were analyzed. For this reason, it is reported that there is a high probability of selection error in line with this analysis. Also, Dennis et al.<sup>3</sup> in another study he carried out, he analyzed 33 women who did not go through menopause and who had pre-menopausal age, and dealt with the possibility of a seasonal change in AMH and showed in his study that it was related to the magnitude of the change in AMH level and vitamin D level. On the contrary of this study, our study will keep serum AMH levels at normal levels in pre-menopausal women with vitamin D deficiency by providing 1,25-dihydroxyvitamin D3 supplementation, and in order to test this thought, 67 patients who could not find any beneficial effect of vitamin D were included in the supplementation of serum AMH levels. We can say that it is compatible with a retrospective study<sup>20</sup>. In a study similar to the previous study, 340 women were included in this recent retrospective study, and neither in this case, which we call polycystic ovary syndrome (PCOS), nor in patients with ovulatory diagnosis, no correlation was found in serum AMH and vitamin D levels<sup>16</sup>. Although a study is planned to address the relationship between the most important ovarian reserve markers (AMH and AFC) and serum vitamin D in line with the information obtained from the studies, cross-sectional findings are shown due to the nature of the study. We must accept. From this point of view, we cannot form or exclude any causal effect hypothesis. Despite these, the data we obtained in our study show that the relationship between vitamin D and ovarian reserve markers is very low.

Some limitations of our study should be taken into account. First, as this is a retrospective observational study, the influence of factors that have the potential to influence the outcome cannot be excluded. However, when the demographic and cycle characteristics of the two groups in our study were examined, the potential confounding factors were not statistically different between the two groups. The second limitation is that potential seasonal changes in women undergoing IUI were not evaluated in our study; Quantitative evaluations were made only on serum vitamin D levels. One of the strengths of our study is that it was conducted with a relatively large number of patients over a wide period of time. Another strength is that the study was conducted in a single center with a standard treatment approach that did not change between cycles.

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### CONCLUSION

The data presented in this study show that vitamin D levels do not affect pregnancy outcomes in the treatment of intrauterine insemination following ovulation induction. Although vitamin D supplementation is necessary for general health in those with serum vitamin D levels <20 ng/mL, there is insufficient evidence whether this supplementation will increase pregnancy rates in infertile couples. Therefore, large-scale studies are needed to explain the relationship between vitamin D and pregnancy after IUI, especially since no clear results have been found in IVF and vitamin D studies published so far.

### ETHICS STATEMENT

Ethical protocol was approved by XXX Ethics Committee, approval number (2021-758).

**Conflict of Interest:** The authors declared no conflicts of interest.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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**Table 1. Demographic characteristics of the harvests included in the study.**

	Overall	Vitamin D <20 ng/mL	Vitamin D ≥20 ng/mL	P value
<b>Number of patients, n (%)</b>	284	267 (94.01)	17 (5.99)	
<b>Age, mean (SD)</b>	31,37 (6,46)	31,09 (6,46)	35,18 (5,24)	0,008
<b>BMI (kg/m<sup>2</sup>), mean (SD)</b>	25,82 (3,18)	25,92 (3,22)	26,12 (2,75)	0,779
<b>Smoking (%)</b>				0,902
Smoker	121 (42.61)	114 (94.21)	7 (5.79)	
Non- smoker	163 (57.39)	153 (93.87)	10 (6.13)	
<b>Infertility cause, n (%)</b>				0,727
Ovulatory	65 (22.89)	60 (92.30)	5 (7.70)	
Endometriosis	13 (4.57)	12 (92.30)	1 (7.70)	
PCOS	49 (17.25)	45 (91.84)	4 (8.16)	
Male factor	10 (3.52)	9 (90)	1 (10)	
Unexplained	147 (51.77)	141 (95.92)	6 (4.08)	
<b>Season of blood sample, n (%)</b>				<0,001
Spring	63 (22.19)	63 (100)	0 (0)	
Summer	26 (9.16)	9 (34,62)	17 (65.38)	
Autumn	74 (26.05)	74 (100)	0 (0)	
Winter	121 (42.60)	121 (100)	0 (0)	
<b>AFC, median (IQR)</b>	7,99 (5,08)	8,01 (5,092)	7,76 (4,99)	0,838
<b>AMH (ng/ml), mean (SD)</b>	3,31 (2,97)	3,32(2,97)	3,44 (3,11)	0,938
<b>TSH, (mIU / L), mean (SD)</b>	2,04 (1,2)	2,04 (1,2)	2,28 (1,29)	0,439
<b>E2, (Pg/mL), mean (SD)</b>	45,9 (26,6)	45,37 (26,99)	54,29 (21,38)	0,013
<b>FSH, (mIU/ml), mean (SD)</b>	7,47 (3,43)	7,49 (3,47)	7,32 (3,06)	0,895
<b>LH, (IU/L), mean (SD)</b>	7,84 (4,75)	7,77 (4,77)	9,25 (4,80)	0,057
<b>Prolactin, (µg/L), mean (SD)</b>	18,4 (10,35)	18,49 (10,25)	18,34 (12,43)	0,563



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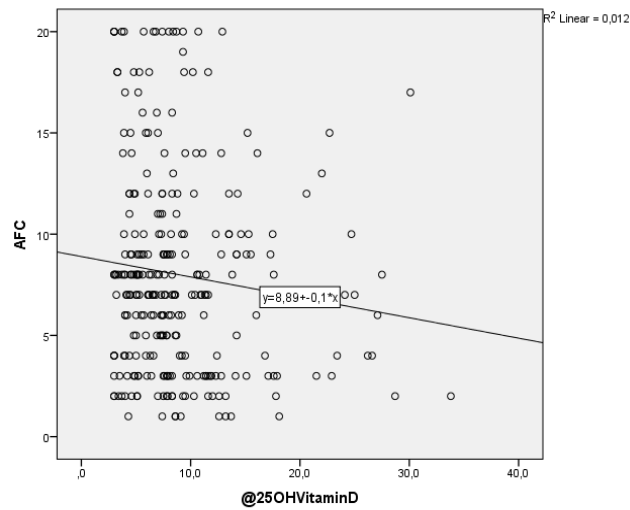


Figure 1: No correlation was found between AFC and Vitamin D (p:0,072, r:-0,107)

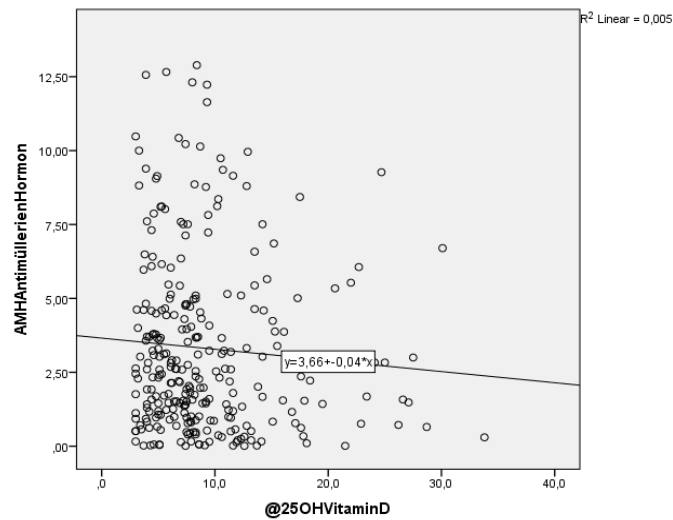


Figure 2: No correlation was found between AMH and Vitamin D (p:0,243, r:-0,088)



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## Correlation of Problem Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Students



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**ABSTRACT:** This study aims to determine the correlation of Problem-Based Learning Model and Discovery Learning Model with students' creativity and learning motivation. This research uses a quantitative approach of correlation type. . The sample in this study used purposive sampling, namely grade 6 with a total of 40 students, consisting of 19 students at SD Negeri Awu Awu and 21 students at SD Negeri Wingkoharjo. Data collection using observation sheets and questionnaire statements. Data analysis in this study used Product moment Correlation Test and t-Independent Test.

The results of this study indicate that there is a significant correlation between the application of the Problem-Based Learning learning model and the learning creativity of students at SD Negeri Awu Awu with a pearson correlation value = 0.660 and a p-value (sig-2tailed) of 0.002. There is a significant correlation between the application of the Problem-Based Learning learning model and student learning motivation at SD Negeri Awu Awu with a pearson correlation value = 0.834 and a p-value (sig-2tailed) of 0.000. There is a significant correlation between the application of the Discovery Learning learning model and students' learning creativity at SD Negeri Wingkoharjo with a pearson correlation value = 0.660 and a p-value (sig-2tailed) of 0.001. There is a significant correlation between the application of the Discovery Learning learning model and student learning motivation at SD Negeri Wingkoharjo with a pearson correlation value = 0.501 and a p-value (sig-2tailed) of 0.021. There is no significant difference between creativity and motivation of students in the application of both learning models with a significance value of 0.064 for learning creativity and with a significance value of 0.477 for learning motivation.

**KEYWORDS:** Problem-based Learning, Discovery Learning, Learning Creativity, Learning Motivation

### I. INTRODUCTION

Learning from the point of view of interactional theory is defined as the process of interaction of students with educators and learning resources in a learning environment. Based on this concept, learning is considered to have good quality if the interactions that occur are multi-directional, namely teacher-learner, student-teacher, student-learner, student-learning resources, and student-learning environment (Nurdyansyah & Fahyuni, 2016). In this concept, the implementation of the learning process in elementary schools is carried out interactively, inspiring, challenging, fun, motivating students to play an active role, and providing sufficient space for initiative, creativity and independence according to the talents, interests, and physical and psychological development of students.

In the 21st century, the learning process requires learners to have several high-level thinking skills, namely critical thinking skills. Critical thinking skills are skills that are focused on making decisions, analyzing, evaluating, a problem that can be accounted for. Critical thinking skills are important for students to train responsibility and train skills in analyzing and solving various problems (Nasihani et al., 2020). PJOK learning in schools has a very important role, where students are given the opportunity to be directly involved in various learning experiences. PJOK learning can improve the cognitive abilities of students, besides that PJOK subjects are very important in supporting psychomotor abilities. By doing various physical activities, students can grow and develop properly according to their age. Because in the subject of PJOK taught how to do activities to support children's health. In physical education sports and health there is a goal called movement skills. These movement skills can mean non-sporting movements and movements for exercise. Motion for exercise, for elementary school children, does not mean that elementary school children must be trained for high achievement, but elementary school children must be prepared according to their stage of development, and their stage of maturity (Iqbal et al., 2021). Educators are required to be able to package learning materials

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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 and can increase students' creativity. The success of the curriculum lies largely with the teacher. The teacher factor emphasizes how the teacher makes a lesson plan which is related to the learning model and media that will be given to students. The learning model is defined as a conceptual framework that describes systematic procedures in organizing learning experiences to achieve specific learning objectives, and serves as a guide for learning designers and teachers in planning and implementing learning activities.

In solving obstacles in the physical education learning process, the application of learning models can be carried out in order to create maximum learning outcomes. The learning model is one of the important components in determining the success of learning including its application in physical education. learning physical education or PJOK. (Nopiyanto, 2020) revealed that boredom that continues to develop in students can affect motivation and learning outcomes. For this reason, it is necessary to make efforts to improve the learning process so that it can increase the motivation and learning outcomes of students. One of the learning models is an important component that must be used in learning. The application of learning models in PJOK is expected to be able to increase student attention, motivate students to enthusiastically carry out activities in the PJOK learning process and can benefit in the form of values tucked away during learning, especially attitude values (Agustryani, 2020). (Indrayogi, 2022) revealed that providing the right learning model to increase students' understanding of movements in jumpsihat gymnastics. One of them is by using an inquiry learning model. A learning model is needed to develop skills and the ability to use knowledge based on existing main tasks, especially for creative work in real life. The results of field observations conducted by researchers revealed that in learning PJOK in this upper grade elementary school there are two learning models applied, namely Problem-Based Learning and Discovery Learning learning models. The results of observations reveal that if the PJOK teacher applies this because it best affects learning outcomes in locomotor, non-locomotor and manipulative components, especially in volleyball learning. In line with the results of the observations made. Some literature reviews on learning models reveal that in learning PJOK there are several models that are considered the best applied to increase learning creativity and learning motivation including Problem-Based Learning and Discovery Learning. The Problem-Based Learning model is suitable for supporting students' analytical thinking skills because the Problem-Based Learning model emphasizes a problem process with one of its approaches, namely investigation so that the learning process becomes meaningful. The application of the Problem-Based Learning model was chosen because it requires students to be active in the investigation and problem-solving process in learning. Problem-Based Learning is learner-centered learning and empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop feasible solutions to solve a problem (Cavicchia, et al., 2018); (Bindayna & Deifalla, 2020). Problem-based learning begins after the teacher provides a problem scenario taken from a daily life problem (Kassymova, et al., 2020); (Ulger, 2018); (Tsatsé & Sorensen, 2021); (Kassem, 2018: 3). After the problem identification process is complete, learners should try to solve the scenario problem using prior knowledge and existing knowledge. In line with this statement (Estrada, 2017) revealed that Problem-Based Learning is a good approach used in solving learning problems because this approach is centered on students to think critically to solve the problems faced. (Prabandaru, Lismadiana, & Nanda, 2020) revealed that learning using Problem-Based Learning is a good approach in overcoming physical education learning problems. Furthermore, it is revealed that Problem-Based Learning is a learning approach model by letting students solve problems faced by themselves with the help of teachers of course. Because in the learning environment students are directly involved in investigating and finding solutions to problems, so that in the end students are helped to become independent learners who can help themselves, in solving problems faced (Mushlihuiddin, 2018: 697). According to (Wasonowati et al, 2014) the Problem-Based Learning model at the stage with the presentation of the problem, then students search and analyze the problem through direct experiments or scientific studies. Through these activities, students' scientific thinking activities and processes become more logical, organized and thorough, making it easier to understand concepts. Through problem-based learning, learners can evaluate the investigation process of real problems. This model can attract students to be more enthusiastic and active in the learning process and can train students to think critically (Aini et al., 2021). This process is expected to help learners to activate prior knowledge and elaborate through discussions with peers, explaining to themselves and others, and answering questions. Elaboration is expected to promote cognitive and motivational self-regulation and enhance lifelong learning skills (Saqr et al., 2018). By going through this process, students will go through a learning process that can increase students' learning motivation and creativity. Discovery Learning itself has an understanding. Discovery Learning is learning that encourages students to investigate on their own, find and build on past experiences and knowledge, use intuition, imagination, and creativity, and seek new information to find new facts, correlations, and truths (Mile, 2021). Darsana (2022) explains that the Discovery Learning model is part of the scientific approach and has advantages when compared to other approaches because the learning process consists of five main learning experiences, namely; a) observing, b) questioning, c) gathering information, d) associating, and e)

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communicating. The Discovery Learning Model requires students to be more active and creative in learning a subject matter (Arifudin, Wilujeng, & Utomo, 2016). So this model is very relevant to be used in the learning process, where it will be better if in learning students can learn independently accompanied by the teacher. In using the Discovery Learning model, the teacher only gives problems to students, and students try to solve the problems independently. At the data collection stage, when exploration takes place the teacher also provides opportunities for students to collect as much relevant information as possible to prove whether or not the hypothesis at this stage functions to answer questions or prove the correctness of the hypothesis. Thus students are given the opportunity to collect various relevant information, read literature, observe objects, interview with sources, do their own tests and so on. From this stage students learn actively to find something related to the problem at hand, thus inadvertently students connect the problem with the knowledge they already have. So that at this stage it becomes the main stage in increasing students' learning creativity. In addition, in the process of collecting information from various sources, students can find new experiences that have never been done by students so that students' motivation will increase to solve problems well.

Based on the background that has been stated above, the researcher is interested in conducting research with the title "Correlation of Problem-Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Learners".

### **II. METHOD**

This research uses a quantitative approach with a correlation type, using data collection methods through observation and questionnaires, this is based on instruments, data collection processes, and quantitative data analysis, or in the form of numbers and ends with a generalization process. This study sought to provide an overview of the application of two learning models, namely Problem-Based Learning and Discovery Learning, besides that this study will also see significant developments in terms of learning creativity and learning motivation from students after the application of Problem-Based Learning and Discovery Learning learning models. Correlation analysis was conducted using SPSS 25 application to produce more accurate data. Data analysis is concluded by describing in the form of a systematic and sequential discussion.

#### **Time and Place of Research**

This research was conducted in November 2023 at SD Negeri Awu Awu and SD Negeri Wingkoharjo.

#### **Population and Research Sample**

The population in this study were all students in grades one to six at SD Negeri Awu Awu and SD Negeri Wingkoharjo, totaling 239 students.

The sample in this study used purposive sampling technique. purposive sampling is a technique that requires consideration in selecting samples or techniques for selecting samples using certain criteria. The criteria determined in sampling in this study are classes whose learning uses the 2013 curriculum; classes that use Problem-Based Learning and Discovery Learning learning models. So it can be determined that the research sample is grade VI students of SD Negeri Awu Awu with a total of 19 students and SD Negeri Wingkoharjo with a total of 21 students. SD Negeri Awu Awu with Problem-Based Learning model treatment while SD Negeri Wingkoharjo with Discovery Learning model.

#### **Research Instruments and Data Collection Techniques**

##### **1. Data Collection Technique**

The data collection step in this study is that the researcher contacts the PJOK teacher at both elementary schools, then asks for help to conduct lessons using both learning models, then the researcher fills out the observation sheet on the application of both learning models during learning. After the learning is complete, students are given a questionnaire sheet to fill in according to the learning experience that has been carried out with the PJOK teacher to measure the learning creativity and learning motivation of students.

##### **Data Collection Instruments**

The data collection instruments in this study were observation sheets and questionnaires. Observation sheets to identify aspects of the application of both learning models, while questionnaires are used to measure the results of students' learning creativity and learning motivation.

##### **Research Data Analysis Technique**

The data obtained from the results of the study were then categorized to determine the level of creativity and learning motivation of students. Mardapi in A Taufiq, Gigih Siantoro, Amrozi Khamidi (2021) that the guidelines for categorizing variable scores adapted to research use the ideal mean value and standard deviation. To find out the Ideal Mean (Mi) and Ideal Standard

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Deviation (SDi) values, first calculate the Ideal Mean (Mi):  $\frac{1}{2}(X_{Maksimal} + X_{Minimal})$  and Ideal Standard Deviation (SDi):  $\frac{1}{6}(X_{Maksimal} + X_{Minimal})$ . Guidelines for categorizing the level of learning motivation can be seen in the table as follows:

Category	Formula
Very High	$X \geq (Mi + SDi)$
High	$Mi \leq X < (Mi + SDi)$
Low	$(Mi - SDi) \leq X < Mi$
Very Low	$X < (Mi - SDi)$

After categorization, the data obtained in this study will be analyzed for hypothesis testing using the Product moment correlation test and the T-independent test (t-independent test). The product moment correlation test, also known as Pearson correlation, is one of the statistical methods used to measure the level of relationship or correlation between two variables on an interval or ratio scale.

### III. RESEARCH RESULT

This research was conducted at SD Negeri Awu Awu and SD Negeri Wingkoharjo. The sample in this study were grade VI students of SD Negeri Awu Awu and SD Negeri Wingkoharjo which amounted to 188. This study uses product moment correlation data analysis and t-Independent test. The description of the research data obtained by each variable in detail is described as follows:

#### a. Correlation of the Application of the Problem-Based Learning Model with the learning creativity of students at SD Negeri Awu Awu.

		PENERAPAN_ PBL	KREATIVITAS BELAJAR
PENERAPAN_ PBL	Pearson Correlation	1	.660**
	Sig. (2-tailed)		.002
	N	19	19
KREATIVITAS BELAJAR	Pearson Correlation	.660**	1
	Sig. (2-tailed)	.002	
	N	19	19

Based on the results of the correlation test between the application of the Problem-Based Learning Model (Penerapan\_PBL) and the learning creativity of students at SD Negeri Awu Awu, a Pearson correlation coefficient of 0.660 was obtained. A significant correlation coefficient indicates a strong positive relationship between the application of the Problem-Based Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.002 shows that the value is smaller than the commonly used significance level (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning model and students' learning creativity at SD Negeri Awu Awu.

#### b. Correlation between the Application of Problem-Based Learning Model and Students' Learning Motivation at SD Negeri Awu Awu.

		PENERAPAN_ PBL	MOTIVASI BELAJAR
PENERAPAN_ PBL	Pearson Correlation	1	.834**
	Sig. (2-tailed)		.000
	N	19	19
MOTIVASI BELAJAR	Pearson Correlation	.834**	1
	Sig. (2-tailed)	.000	
	N	19	19

Based on the results of the correlation test between the application of the Problem-Based Learning Model (Penerapan\_PBL) and student learning motivation at SD Negeri Awu Awu, a Pearson correlation coefficient of 0.834 was obtained. A significant

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correlation coefficient indicates a very strong positive relationship between the application of the Problem-Based Learning Model and students' learning motivation. In addition, the p-value (Sig. 2-tailed) of 0.000 indicates that the value is smaller than the commonly used significance level (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and students' learning motivation at SD Negeri Awu Awu.

### c. Correlation between the Application of Discovery Learning Model and Students' Learning Creativity at SD Negeri Wingkoharjo

		Correlations	
		Penerapan Discovery Learning	Kreativitas Belajar
Penerapan	Pearson Correlation	1	.660**
Discovery Learning	Sig. (2-tailed)		.001
	N	21	21
Kreativitas Belajar	Pearson Correlation	.660**	1
	Sig. (2-tailed)	.001	
	N	21	21

Based on the results of the correlation test between the application of the Discovery Learning Model and the learning creativity of students at SD Negeri Wingkoharjo, the Pearson correlation coefficient is 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.001 shows that the value is smaller than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence). This shows that there is enough statistical evidence to support the existence of a significant relationship between the application of the Discovery Learning model and students' learning creativity at SD Negeri Wingkoharjo.

### d. Correlation between the Application of Discovery Learning Model with Students' Learning Motivation at SD Negeri Wingkoharjo

		Correlations	
		Penerapan DL	Motivasi Belajar
Penerapan DL	Pearson Correlation	1	.501*
	Sig. (2-tailed)		.021
	N	21	21
Motivasi Belajar	Pearson Correlation	.501*	1
	Sig. (2-tailed)	.021	
	N	21	21

Based on the results of the correlation test between the application of the Discovery Learning Model and the learning motivation of students at SD Negeri Wingkoharjo, the Pearson correlation coefficient is 0.501. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.021 shows that the value is smaller than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence). This shows that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning model and students' learning motivation at SD Negeri Wingkoharjo.

### e. Differences between Learning Creativity and Learning Motivation of Learners in the Application of Problem-Based Learning and Discovery Learning Models

#### 1) The Difference Between Learning Creativity Between the Two Learning Models

Variabel	Significance Value
Learning Creativity of Learners on the application of Problem-Based Learning model at SD	0,064



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Negeri Awu Awu and SD Negeri Wingkoharjo who apply Discovery Learning model	
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Based on the results of statistical testing, it can be seen that the significance value is  $0.064 > 0.05$ , which means that there is no significant difference in the learning creativity of students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model.

### 2) The Difference Between Learning Motivation Between the Two Learning Models

Variabel	Significance Value
Students' Learning Motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model.	0,477

Based on the results of statistical testing, it can be seen that the significance value is  $0.477 > 0.05$ , which means that there is no significant difference in student learning motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model.

## DISCUSSION

### a. Correlation of Problem-Based Learning Model Application with students' learning creativity at SD Negeri Awu Awu.

The results showed that there was a significant correlation between the application of the Problem-Based Learning Model and the learning creativity of students at SD Negeri Awu Awu, obtained a Pearson correlation coefficient of 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Problem-Based Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.002 shows that the value is smaller than the commonly used significance level (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and learning creativity. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Problem-Based Learning Model (PBL) and participants' learning creativity. students at SD Negeri Awu Awu. The Problem-Based Learning model provides opportunities for learners to be actively involved in the learning process with a focus on problem solving. In this context, when learners face problem situations that are relevant to real life, they are required to find solutions independently through exploration, discussion and collaboration with classmates. The Problem-Based Learning model encourages learners to develop critical thinking, analytical and problem-solving skills. With complex problem situations, learners are faced with the challenge of gathering information, analyzing various related factors, and formulating appropriate solutions. Through Problem-Based Learning, learners are invited to analyze situations, identify problems, and design appropriate solutions. This ability is important in understanding and improving performance in various aspects of physical education (Setyosari & Sumarmi, 2017). In this case, students will be required to think critically so that it will foster the creativity of students who will issue ideas in solving problems.

### b. Correlation between the Application of Problem-Based Learning Model and Students' Learning Motivation at SD Negeri Awu Awu.

The results showed that there was a significant correlation between the application of the Problem-Based Learning Model and the learning motivation of students at SD Negeri Awu Awu, obtained a Pearson correlation coefficient of 0.834. The significant correlation coefficient indicates a very strong positive relationship between the application of the Problem-Based Learning Model and students' learning motivation. In addition, the p-value (Sig. 2-tailed) of 0.000 indicates that the value is smaller than the commonly used significance level (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and learning motivation.

## **Correlation of Problem Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Students**

Theoretically, there are several reasons why a significant correlation indicates a very strong positive relationship between the application of the Problem-Based Learning Model (PBL) and students' learning motivation at SD Negeri Awu Awu. The Problem-Based Learning Model provides opportunities for learners to be actively involved in the learning process with a focus on problem solving. In this context, when learners face problem situations that are relevant to real life, they are required to find solutions independently through exploration, discussion and collaboration with classmates. One of the advantages of the Problem-Based Learning model is that students can feel the benefits of learning because the problems faced by children are associated with real life, this can increase motivation and interest in the material being studied (Santiani, Sudana, Tastra, 2017). Through the application of the Problem-Based Learning Model, learners are faced with problem situations related to the context of their daily lives. This allows learners to see the connection between the material learned and their own lives, so that it can increase learners' motivation and interest in learning. By actively engaging learners in a relevant and meaningful learning process, the Problem-Based Learning Model can strengthen emotional attachment and enhance the learning process. learners' intrinsic motivation towards learning. Learners who are highly motivated to learn allow high learning outcomes as well, meaning that the higher the motivation, the more intensity of effort and effort made, the higher the critical thinking ability. The following are things that have been well done by teachers and students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu:

1. Teachers play an active role in preparing learning and all learners can follow it.
2. The teacher provides an explanation related to the learning objectives and outlines the scope of the material to be studied and all students pay attention to it.
3. All students observe pay attention to the problems given by the teacher.
4. The teacher gives instructions to students to sit according to their groups.
5. All learners conduct discussions with their groups.
6. The teacher delivers both individual and group assignments
7. The teacher informs the learning activity plan for the next meeting.
8. Teachers and students conduct a final assessment in accordance with the competencies learned.

Things that need to be improved by both teachers and students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu:

1. Learners need to play an active role in answering or responding to questions about the previous material given by the teacher.
2. Learners need to play an active role in making questions related to the problems given by the teacher.
3. Teachers need to divide tasks so that students can work according to the division of tasks.
4. Learners should be more active in problem solving discussions.
5. Learners need to be more active in responding or asking questions to other groups during presentations.

### **c. Correlation between the Application of Discovery Learning Model and Learning Creativity of Students at SD Negeri Winkoharjo**

The results showed that there was a significant correlation between the application of the Discovery Learning Model and the learning creativity of students at SD Negeri Winkoharjo, obtained a Pearson correlation coefficient of 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.001 shows that the value is smaller than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning Model and learning creativity. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity at SD Negeri Winkoharjo. This is because the Discovery Learning Model is a learning approach where students are enabled to discover and construct their own knowledge through exploration and experimentation. This approach encourages students to be actively involved in the learning process, designing hypotheses, collecting data, and drawing conclusions. In the learning process using the Discovery Learning method, students are required to be more active and creative in learning a subject matter (Arifudin, Wilujeng, & Utomo, 2016). So that in its implementation, the teacher only gives problems to students, and students try independently to solve these problems.

## **Correlation of Problem Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Students**

### **d. Correlation between the Application of Discovery Learning Model and Students' Learning Motivation at SD Negeri Wingkoharjo**

The results showed that there was a significant correlation between the application of the Discovery Learning Model and the learning motivation of students at SD Negeri Wingkoharjo, obtained a Pearson correlation coefficient of 0.501. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.021 shows that the value is smaller than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning Model and learning motivation. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning motivation at SD Negeri Wingkoharjo. (Sulfemi & Yuliana, 2019) argue that Discovery Learning tends to arouse learners' intrinsic motivation, as they have more control over their learning process. In the context of Physical Education, this can increase learners' participation and interest in physical activity, which in turn can have a positive impact on their learning motivation. The following are things that have been well done by teachers and learners in the application of the Discovery Learning model at SD Negeri Wingkoharjo:

1. Teachers well prepare the learning psychologically.
2. Learners are active in responding or answering the teacher's questions about the connection to the previous material.
3. Teachers actively encourage students to identify problems.
4. Learners compare the results of data processing with other sources.
5. The teacher and learners reflect on the learning material that has been implemented.
6. The teacher gives further assignments to students.
7. The teacher provides information related to the next meeting's learning plan and all students listen to it.

Things that need to be improved by both teachers and students in the application of the Problem-Based Learning model at SD Negeri Awu Awu:

1. Learners need to increase their enthusiasm in asking questions about the phenomena observed.
2. Learners need to play an active role in reading from other sources.
3. Teachers need to invite learners to classify or categorize the data obtained.
4. Teachers need to invite learners to tabulate the data obtained.

### **e. The Difference Between Learning Creativity and Student Motivation in the Application of Problem-Based Learning and Discovery Learning Models**

The results of the independent t-test on students' learning creativity in learning PJOK at Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. It is known that the significance value is  $0.064 > 0.05$ , indicating that the value is greater than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence) which means that there is no significant difference in the learning creativity of students in the application of the Problem-Based Learning learning model at Awu Awu State Elementary School and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. Then the results of the independent t-test on the learning creativity of students in PJOK Learning at Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. Based on the results of statistical testing, it can be seen that the significance value is  $0.477 > 0.05$ , indicating that the value is greater than the level of significance generally used (for example,  $\alpha = 0.05$  or 95% confidence). Which means there is no significant difference between students' learning motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model. The reason is that there is no difference between learning creativity and learning motivation of students in the application of PJOK learning in Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. First, according to the results of the research both models have a significant correlation between the two learning models with the creativity and learning motivation of students. Secondly, theoretically both learning models have the same goal, namely to increase students' creativity and motivation to learn. So it is possible that these two things are a factor in the absence of differences between the two learning models. Although there is no difference between learning creativity and learning motivation of students in the application of PJOK learning in Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model, but the results of the study can be seen that the

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application of the Discovery Learning learning model is better than the application of the Problem-Based Learning learning model. There are several factors that can influence. First, the syntax of the Discovery Learning learning model is more than the Problem-Based Learning learning model so that students have more stages in solving problems. Second, in problem solving using the Discovery Learning learning model, students are more required to solve independently so that students will focus more on discovery, investigation, and independent problem solving. The Discovery Learning learning model focuses on discovery and investigation, where students can find their own answers to the problems at hand, in contrast to Problem-Based Learning which emphasizes problem solving through discussion and interaction (Asmal, 2023).

### IV. CONCLUSIONS

#### Conclusions

Based on the analysis of descriptive data, testing of research results and discussion, it can be concluded that:

- a. There is a significant correlation between the Problem-Based Learning learning model and the development of students' learning creativity at SD Negeri Awu Awu. With a Pearson correlation coefficient of 0.660 and a p-value (Sig. 2-tailed) of 0.002 <0.05. This means that the higher the level of application of the Problem-Based Learning learning model, the better the students' learning creativity.
- b. There is a significant correlation between the Problem-Based Learning learning model and the development of students' learning motivation at SD Negeri Awu Awu. With a Pearson correlation coefficient of 0.834 and a p-value (Sig. 2-tailed) of 0.000 <0.05. This means that the higher the level of application of the Problem-Based Learning learning model, the better the students' learning motivation.
- c. There is a significant correlation between the Discovery Learning learning model and the development of students' learning creativity at SD Negeri Wingkoharjo. With a Pearson correlation coefficient of 0.660 and a p-value (Sig. 2-tailed) of 0.001 <0.05. This means that the higher the level of application of the Discovery Learning learning model, the better the students' learning creativity.
- d. There is a correlation between the Discovery Learning learning model and the development of students' learning motivation at SD Negeri Wingkoharjo. With a Pearson correlation coefficient of 0.501 and a p-value (Sig. 2-tailed) of 0.021 <0.05. This means that the higher the level of application of the Discovery Learning learning model, the better the students' learning motivation.
- e. There is no significant difference between learning creativity and students' learning motivation in the application of Problem-Based Learning and Discovery Learning learning models. With a significance value of 0.064 > 0.05 for learning creativity and with a significance value of 0.477 > 0.05.

#### Suggestion

Based on the results of the research that has been conducted, there are several research suggestions that can be made to further explore and develop the use of Problem-Based Learning and Discovery Learning learning models in the context of elementary schools. Some research suggestions that can be proposed are as follows:

- a. Future research can involve more than two elementary schools to obtain more representative data. The results of this study can provide a clearer insight into the advantages and disadvantages of the two learning models.
- b. Further research can be conducted to explore more deeply the role of teachers in the implementation of Problem-Based Learning and Discovery Learning models in elementary schools to examine effective teaching strategies, increase teacher competence, and other factors that contribute to the successful implementation of the two learning models.
- c. With the known results, it is recommended for PJOK teachers to implement learning using Problem-Based Learning and Discovery Learning learning models to increase students' learning creativity and learning motivation.

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## Prevention of Induced Abortion - Effect on Pain. Systematic Review of a Database



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**ABSTRACT:** Review of the current literature on pain prevention in induced abortion. An in - depth analysis of the guidelines of leading international and national organizations for prophylaxis of induced abortion-surgical and medicated abortion during the I-st and II-nd trimester in terms of pain response has been carried out. Shared with the author's many years of practical experience in order to assess the risks and benefits of the application of modern means of prophylaxis in artificial abortion and thus to improve the individual obstetric-gynecological practice.

*Methods:* review of available literature from the last 10 years.

*Results and discussion:* Paracetamol, oral lorazepam and nitric oxide do not improve pain control. Currently, the use of sedation is not recommended for Surgical abortion. Inhalation anaesthesia should not be used for sedation. Intravenous sedation with fentanyl and midazolam is recommended and safe - below 1.0% complications.

In Medical abortion, 75.0% of women experience pain severe enough to require analgesia. The pain begins 2.5 to 4 hours after the use of perplex and lasts about an hour. During the extravehicular trimester, taking a higher number of doses intravenously is associated with more severe and frequent pain. In medicated abortion < 14 gw. non-steroidal anti-inflammatory drugs are recommended 30-45 minutes before the procedure. Non-steroidal medicines do not reduce the efficacy of urgencies. Routine administration of paracervical block before 13 gw. when using modern means for medicated abortion is unnecessary. Narcotic analgesics (Tramadol) do not affect pain in early Medical abortion and their routine use is not recommended.

**Conclusion:** In Surgical abortion, analgesia is always offered. Most commonly, analgesics, such as non-steroidal anti-inflammatory drugs local anesthesia (paracervical block with Lidocaine 20.1%; or 10.2%), and/ or sedation, supplemented with verbal sedation, are sufficient to relieve pain before mechanical cervical dilation and during uterine evacuation. The technique of deep paracervical injection of Lidocaine at two points is recommended.

**KEYWORDS-** induced abortion, prophylactic, pregnancy

### I. INTRODUCTION

Many studies have proven that women experience varying degrees of pain with abortion [3]. The need to manage pain increases with gestational age. The degree of pain varies depending on the woman's age, history of previous vaginal delivery or dysmenorrhea, and level of anxiety. A history of previous vaginal delivery was associated with experiencing less ha pain [3], and a history of frequent analgesic use contributed to feeling more pain. All women should be offered pain relief without delay [2]. Ignoring this important element unnecessarily increases anxiety in women and seriously compromises the quality of the abortion procedure. Numerous studies have found that pain control is underestimated in abortion procedures [3].

### II. RESULTS AND DISCUSSION

#### ***Pain control in surgical abortion (SA):***

Analgesia should always be offered without delay in SA [2]. It is more painful for women than it is for women because it requires greater cervical dilation, and intrauterine manipulations last longer. In SA, three groups of medications are used to control pain: analgesics that relieve the feeling of pain, sedatives that reduce anxiety, and anesthetics that exclude physical sensation. In most cases, analgesics such as non-steroidal anti-inflammatory drugs, local anesthesia (paracervical block) and/ or sedation, supplemented with verbal sedation, are sufficient for pain control [3]. With minimal, moderate and deep sedation or general



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anaesthesia, patients need to be informed about the risks and benefits. General anesthesia is not recommended for routine use in SA, pain control as it is associated with a higher rate of complications and a longer hospital stay than local anesthesia [3].

Local anaesthesia with lidocaine (20 ml 1%; or 10 ml 2%), administered as a paracervical block (injected to a depth of 3 cm), can be used to relieve pain before mechanical cervical dilation and during uterine evacuation [3]. It is injected laterally into the cervical opening on each side (positions of 3 hours and 9 hours) with half the local anaesthetic for each site. Appropriate dose (total 7 ml at < 8 gw. and 14 ml at more 8 gw.) 2% Lidocaine with Adrenaline 1:200,000. The maximum safe dose of 5-7 aposematic/2% lidocaine should not be exceeded! Adrenaline should be skipped when pregnancy is less than 6 weeks due to the risk of prolonged vasospasm of the uterine artery [3].

Deep lidocaine injection at a depth of 3 cm in a 2 or 4 - point paracervical injection technique (at 2 and 10 hours and/or 4 and 8 hours) provides more effective pain relief than superficial (1.5 cm) [3]. A randomized controlled trial found that the addition of sodium bicarbonate (1 ml 8.4% sodium bicarbonate for every 10 intravascular anaesthetic solution) to a paracervical block with 1% lidocaine did not reduce the results for cervical dilation pain compared to lidocaine alone [6]. It is not clear whether the four-point injection technique is better than the two-point injection technique, and no differences in pain response were found.

Premedication with non-steroidal anti-inflammatory drugs (ibuprofen or naproxen) relieves pain during and after the paracervical block procedure. [7]. Both oral and intramuscular non-steroidal anti-inflammatory drugs are effective [3]. Non-steroidal anti-inflammatory drugs (Ibuprofen) do not reduce the efficacy of Misoprostol for cervical preparation [1] and can also be used to relieve abdominal cramps caused by Misoprostola. Paracetamol, oral lorazepam and nitric oxide do not improve pain control compared to placebo and should not be used for premedication [1, 3]. The waiting period between injection and cervical enlargement does not improve pain control. It is not clear whether the volume of anesthetic administered affects pain relief. Involuntary intravascular injection of lidocaine should be avoided due to toxic effects (perioral numbness, tinnitus, metallic taste, vertigo or arrhythmia/ bradycardia) and the two-point technique is recommended for this purpose [3].

Non-pharmacological methods that have a neutral or positive effect in SA are empathetic non-judgmental staff behavior, verbal support and controlled deep breathing [3]. Alternative forms of support that have not gained popularity but have the same effect are auricular acupuncture, listening to appropriate music or support from the presence of a third person, a woman's confidant [3]. New methods of pain management such as hypnosis, aromatherapy, etc. are also being experimented with pomegranate. transcutaneous electrical nerve stimulation (TENS) [3]. At this stage, studies do not demonstrate the clinical benefit of modulating pain with 80 Hz TENS applied to the skin of the abdomen and back, and routine administration of the method is not recommended [3]. The results of hypnosis and aromatherapy are contradictory! Although women highly evaluate and recommend the use of nonpharmacological methods for pain management, one should not ignore the fact that a strictly scientific review of None of them showed an objectively statistically significant reduction in pain or anxiety and only had a placebo effect!

In SA < 14gw. (VA) paracervical block without/ with non-steroidal anti-inflammatory drugs is sufficient to affect pain, together with non-pharmacological methods [3]. The benefit of being sedated SA has been clarified [3], but the need for sedation in extravasation remains a matter of debate. Retrospective cohort study of 2017, which included more than 20,000 normal and overweight women and obese women who received intravenous sedation for vacuum aspiration, found that side complications associated with sedation were very rare (0.2%) [3]. However, providing intravenous sedation increases the cost, complexity and potential risks of the abortion procedure and requires very well-trained personnel with specialized patient monitoring equipment. Currently, the use of sedation is not recommended for VA. A 2020 Study on pain response before and after VA assessed the effect of antiepileptic agents such as gabapentin (Neurontin), but found no clinically relevant benefit [3].

For 14 gw. Paracervical block with mild and moderate sedation [7] or deep sedation only is combined. Only intravenous and not oral sedation is used in SA. The combination of an intravenous opioid (fentanyl) and an intravenous sedative (midazolam or propofol) is effective in reducing pain [1,3,4]. Studies that evaluated the safety of intravenous sedation with fentanyl and midazolam in combination with paracervical block during SA reported that the incidence of major complications related to the procedure was less than 1.0% [3]. Intravenous deep sedation with propofol and without intubation is also safe and has few complications in outpatient settings, without the risk of pulmonary aspiration [3].

When sedation of consciousness is available, it should be offered with a cervical block. There is no proven benefit from the addition of non-steroidal anti-inflammatory drugs when moderate and deep sedation is used [3]. There is also no conclusive evidence of the benefit of paracervical block when co-administered with deep sedation or general anaesthesia [3]. Anxiolytics such as lorazepam or midazolam reduce anxiety associated with the procedure and cause amnesia in some women, but do not affect pain outcomes during uterine evacuation[3]. If a general anaesthetic is used in SA, use intravenous Propofol (Diprivan) and a short-acting opioid (e.g. fentanyl), not inhalation anaesthesia. Oral and rectal non-steroidal anti-inflammatory drugs or opioids (Tramadol) may be used to treat pain after uterine evacuation. Rectal tramadol is recommended as more effective [3]

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### ***Pain control in Medical abortion (MA):***

Pain is the most commonly reported side effect in MA [3]. In one study of 6,755 women using MA up to 63 days of pregnancy, 78.4% reported moderate or severe pain and cramps [4]. Similarly, a systematic review from 2006. on five large British and American series of cases of analgesia use during the MA concluded that 75.0% of women experienced pain severe enough to require narcotic analgesia [3]. A study of Ma pain in Nepal, South Africa and Vietnam found that women described pain as stronger than during menstruation and manifested in four different degrees: minimal or no pain; brief intense, usually before expulsion; intermittent, contractions-like; and persistent for one or several hours [3]. The pain rarely begins after taking the Misoprostol, It usually reaches a peak of 2.5 to 4 hours after the use Misoprostol of perplex and lasts about one hour [6,8]. Patients associated with more severe and frequent pain included greater gestational age, younger calendar age, non-delivery or lack of previous vaginal births, and a history of dysmenorrhea [2], [3]. During the extravehicular trimester, taking a higher number of doses Misoprostol was also associated with more severe and frequent pain [2], [3].

In MA < 14 gw. non-steroidal anti-inflammatory drugs such as ibuprofen are recommended 400 40-45 min before the procedure [3,8]. Non-steroidal anti-inflammatory drugs do not reduce the efficacy of Apostille [1]. In case of allergy to ibuprofen or contraindications to non-steroidal anti-inflammatory drugs -an alternative is acetaminophen (paracetamol), but it is not recommended as a first-choice remedy for pain relief during MA [3, 5, 9]. A placebo-controlled, randomised study assessing the efficacy of ibuprofen versus acetaminophen (paracetamol) with codeine in early MA with methotrexate and did not find a clinically relevant effect on paracetamol Pain [1]. The addition of pregabalin (an analogue of gamma-aminobutyric acid) improves the response to pain by reducing the doses required for pain relief with non-steroidal anti-inflammatory drugs [3]. On the one hand, there are no studies evaluating the use of a paracervical block for pain management during MA before 13gw. on the other hand, the routine application of this procedure when using modern means of MA is unnecessary.

Narcotic analgesics (Tramadol) do not affect pain in early MA and their routine use is not recommended [3, 7]. In an early MA study of 3,000 women - of whom only 5% needed a parenteral opiate (Morphine 10 mg), 37% did not need analgesia, 58% received only oral analgesia (Paracetamol 500 mg plus Dihydrocodeine 10 mg) [1]. In a study of 2,747 U.S. women with early MA at home, the use of oral analgesics was found to be 27% higher than in 2,121 women undergoing controlled MA in hospital settings [1].

Over 14 gw. additional analgesics include antiepileptics preferred to anxiolytics (e.g. diazepam 5-10, or midazolam). The combined regimen including prophylactic non-steroidal anti-inflammatory drugs plus oral and/ or parenteral narcotic analgesics [2, 3] is recommended. Administration starts with non-steroidal anti-inflammatory drugs during the first dose, and then is repeated every 6-8 hours if necessary. The effectiveness of non-steroidal anti-inflammatory drugs was demonstrated in the largest cohort study available, in 1,002 women at or after 13 gw. subject to abortion with the Mifepristone and Misoprostol, who were offered a combination of oral and parenteral narcotic analgesics and non-steroidal anti-inflammatory drugs for pain management [3]. The authors of the study report that the proportion of women with pain is only about 5.0%.

In a MA study between 13 and 22 gw of pregnancy, no clinically relevant benefit was found from the use of analgesics such as acetaminophen combined with codeine and alvarin (antispasmodic) [1, 3]. Use of paracervical block during MA at or after 13 gw did not affect pain [3]. There are no comparative studies evaluating the benefit of non-pharmacological pain management strategies in MA at or after 13 gw. Preliminary training about expected pain and bleeding and the placement of a heating pad or hot water bottle to the lower abdomen has a positive effect. Persistent pain, with no response to these analgesics for several hours, requires reassessment for other reasons, such as ectopic pregnancy, infection, or incomplete abortion, and intense pain may be indicative of uterine rupture [6].

### **III. CONCLUSIONS**

Analgesia should always be offered in SA. In most cases, analgesics, such as non-steroidal anti-inflammatory drugs, local anesthesia (Paracervical block with Lidocaine 20.1%; or 10.2%), and/ or sedation, supplemented with verbal sedation, are sufficient to relieve pain before mechanical dilation of the cervix and during the evacuation of the uterus the technique of deep paracervical injection of Lidocaine in two points is recommended. Paracetamol, oral Lorazepam and nitric oxide do not improve pain control. The benefit of being sedated in surgery has been clarified, but the need for a sedation in ambiguities remains debatable. Currently, the use of sedation is not recommended for vacuum aspiration. Intravenous sedation with fentanyl and midazolam is safe - below 1.0% complications. Inhalation anaesthesia should not be used for sedation.

In Medical abortion, 75.0% of women experience pain severe enough to require analgesia. The pain begins 2.5 to 4 hours after the use of perplex and lasts about an hour. During the extravehicular trimester, taking a higher number of doses intravenously is associated with more severe and frequent pain. In Medical abortion < 14 gw. non-steroidal anti-inflammatory drugs are recommended 30-45 minutes before the procedure non-steroidal anti-inflammatory drugs do not reduce the efficacy of

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urgencies. Routine administration of paracervical block before 13 gw. when using modern means for Medical abortion is unnecessary. Narcotic analgesics (tramadol) do not affect pain in early Medical abortion and their routine use is not recommended.

Over 14 gw. in addition to non-steroidal anti-inflammatory drugs, benzodiazepines (Diazepam or Midazolam) are also included. Start with non-steroidal anti-inflammatory drugs at the time of the first dose, and then repeat every 6-8 hours if necessary. The use of analgesics such as acetaminophen combined with codeine and alvarin (antispasmodic) as well as a paracervical block after 13 gw did not affect the pain. The use of non-pharmacological methods did not show an objectively statistically significant reduction in pain or anxiety and had only a placebo effect.

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## The Cardioprotective Effect of N-acetylcysteine on Doxorubicin Induced Cardiotoxicity in Heart Tissue of Rats.



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**ABSTRACT:** Doxorubicin (DOX) is a chemotherapeutic agent and is widely used in cancer treatment. There are some studies suggesting oxidative stress-induced toxic changes in the liver due to DOX administration. The aim of this study was to reveal the oxidative damage of DOX in liver tissue at molecular level and to evaluate the protective effect of N-acetylcysteine (NAC) against DOX oxidative damage.

Twenty four rats weighing 150-200 g were randomly divided into four equal groups; group 1 : control, group 2: received a single dose of DOX, group 3: received NAC for 28 days and group 4: received a single dose of DOX, followed by NAC for 28 days. At the end of the experiment, heart tissues were taken from all animals. Malondialdehyde (MDA), Total Antioxidant Capacity (TAC), Total Oxidant Capacity (TOC) levels were determined in these samples by spectrophotometric methods.

It was determined that TOC level increased, TAC levels decreased in the group given DOX compared to the control group. In addition, TAC levels increased in the DOX+NAC group ( $p<0.05$ ).

It was concluded that DOX administration increased oxidative stress and NAC administration could prevent it. NAC caused modulatory effects on oxidative stress and antioxidant redox system in DOX-induced heart toxicity in the rat.

**KEYWORDS:** Doxorubicin, N-Acetylcysteine, Heart, Oxidative stress.

### I. INTRODUCTION

Doxorubicin (DOX) is an antineoplastic anthracycline antibiotic commonly used in the treatment of adult and pediatric cancers such as breast cancer and lymphoma (Elsherbiny, Salama, Said, El-Sherbiny, & Al-Gayyar, 2016; Hajra, Basu, Singha Roy, Patra, & Bhattacharya, 2017; Polegato et al., 2015). Doxorubicin is a toxic agent, it causes toxicity in many organs and tissues in the organism. One of these organs, the heart, is more sensitive to DOX-induced lipid peroxidation and toxicity (Shahira et al., 2016; Singh et al., 2015). The heart also lacks the antioxidant enzymes needed to detoxify oxidants. Therefore, free radicals accumulate and cause lipid peroxidation (Lamas et al., 2015; Migrino et al., 2008).

The molecular mechanism of the cardiotoxic effect of DOX is multifactorial and has not been fully elucidated. The toxic damage produced by DOX is dose-dependent and may ultimately lead to cardiomyopathy. The main reason for DOX-induced cardiotoxicity is the increase in oxidative stress level due to the imbalance in ROS and reactive nitrogen species (RNS) levels. The heart lacks the antioxidant enzymes needed to reduce oxidative stress. Free radicals thus produced accumulate and cause severe lipid peroxidation, resulting in damage to heart tissue (Cassidy, Chan, Rowland, & Allen, 1998; Hrelia et al., 2002; Olson & Mushlin, 1990).

N-acetylcysteine (NAC) is an important antioxidant that plays a role in reducing oxidative stress in the cell. NAC, a precursor of glutathione (GSH), increases intracellular GSH content, stabilizes the cell membrane, maintains cellular viability and directly scavenges ROS (Mansour, El kiki, & Hasan, 2015; Wang et al., 2014). In this study, we aimed to determine the effect of NAC on DOX-induced oxidative stress.

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## II. RESEARCH METHODS

Adult Wistar Albino rats obtained from Çanakkale Onsekiz Mart University Experimental Research and Application Center were used in this study. Animals had free access to standard rodent food and water under international guidelines standard environmental conditions throughout the study period. Our work was carried out in accordance with the guidelines of the Ethical Committee of Çanakkale Onsekiz Mart University Faculty of Medicine approved the current study (Ethics number: 2021-2100048054). Experiments were conducted in accordance with international guidelines for the ethical use of rats.

Rats were randomly divided in to four experimental groups (6 rats per group) as follows:

- Group 1: Control
- Group 2: DOX (20 mg/kg, intraperitoneal)
- Group 3: NAC (50 mg/kg/day, via gavage) for 28 days
- Group 4: DOX (20 mg/kg Doksorubisin, intraperitoneal) + NAC (50 mg/kg/day, via gavage) for 28 days (from the day of DOX administration)

At the end of the experimental period, the rats were anesthetized by ketamine and xylazine hydrochloride. Then, heart was moved for measuring the oxidative stress markers the rats.

Tissue samples were homogenized in phosphate buffer solution (1:10 w/v, pH: 7.4) using ice-cooled tubes. The homogenate was centrifuged (14,000 rpm, 30 min) and the supernatants were separated for analysis. Protein concentration was estimated by the method of Lowry 10. Tissue samples, taken for malondialdehyde (MDA) determination, were homogenized and subjected to procedures as outlined before (Ohkawa, Ohishi, & Yagi, 1979). TAC and TOC levels were measured by a spectrophotometric assay using commercially available kits (Rel Assay Diagnostics, Turkey). The OSI was defined as the ratio of the TAC level to TOC level.

**Statistical analysis:** Statistical software (IBM SPSS version 19.0, USA) was used to analyze the data obtained. Comparison of multiple groups was determined by analysis of variance (one-way ANOVA) with post hoc Duncan test. Differences were considered significant at  $P < 0.05$ . All variables were represented as mean  $\pm$  standard error of the mean (SE).

## III. RESULTS

### MDA analysis results

In group 2 given DOX, MDA levels increased compared to the control group ( $p < 0.001$ ). In group 4 given DOX+NAC; MDA levels decreased compared to the DOX group and control group ( $p < 0.001$ ). (Table 1.)

Group	MDA (nmole /g)	P Value
1.Control	34.73 $\pm$ 1.38	
2.DOX	38.67 $\pm$ 2.12	§p:<0.001
3.NAC	29.39 $\pm$ 0.48	
4.DOX+NAC	29.88 $\pm$ 0.24	‡p, #p:<0.001

Group Comparisons: §p= 1 vs. 2; ¶p= 1 vs. 3; ‡p= 1 vs. 4; #p: 2 vs. 4

### TAC analysis results

In group 4 given DOX+NAC; TAC levels increased compared to the DOX group ( $p < 0.001$ ). In group 2 given DOX, TAC levels decreased compared to the control group ( $p < 0.001$ ). (Table 2.)

Group	TAC (mmole /L)	P Value
1.Control	1.30 $\pm$ 0.25	
2.DOX	0.77 $\pm$ 0.01	§p:<0.001
3.NAC	1.09 $\pm$ 0.25	
4.DOX+NAC	1.22 $\pm$ 0.19	#p:<0.001

Group Comparisons: §p= 1 vs. 2; ¶p= 1 vs. 3; ‡p= 1 vs. 4; #p: 2 vs. 4

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## TOC analysis results

In group 2 given DOX, TOC levels increased compared to the control group ( $p=0.008$ ). (Table 3.)

Group	TOC ( $\mu\text{mole/L}$ )	P Value
1.Control	1.76 $\pm$ 0.39	
2.DOX	2.49 $\pm$ 0.37	$\S p=0.008$
3.NAC	2.18 $\pm$ 0.37	
4.DOX+NAC	2.14 $\pm$ 0.64	

Group Comparisons:  $\S p= 1$  vs. 2;  $\P p= 1$  vs. 3;  $\ddagger p= 1$  vs. 4;  $\#p: 2$  vs. 4

## OSI analysis results

In group 2 given DOX, OSI ratio decreased compared to the control group. In group 4 given DOX+NAC, OSI ratio increased compared to the group 2 given DOX. (Table 4.) However, no statistical significance was observed between the groups.

Group	OSI ratio	P Value
1.Control	0.24 $\pm$ 0.08	
2.DOX	0.19 $\pm$ 0.04	
3.NAC	0.34 $\pm$ 0.01	
4.DOX+NAC	0.17 $\pm$ 0.05	

OSI = ((TOC,  $\mu\text{mole H}_2\text{O}_2$  Equiv./gram protein)/(TAC,  $\mu\text{mole H}_2\text{O}_2$  Equiv./gram protein)  $\times$  100. Group Comparisons:  $\S p= 1$  vs. 2;  $\P p= 1$  vs. 3;  $\ddagger p= 1$  vs. 4;  $\#p: 2$  vs. 4

## IV. DISCUSSION

DOX-induced oxidative stress in heart tissue can be defined as an increase in ROS and reactive nitrogen species (RNS) levels. In this case, the decrease in antioxidant levels and the subsequent deterioration of the cell structure are considered to be the cause of DOX-related cardiotoxicity (Hrelia et al., 2002; Olson & Mushlin, 1990).

Studies have reported that various antioxidant agents such as vitamin E, vitamin C, selenium, erdosteine and carvedilol prevent DOX-dependent cardiotoxicity (Boucher et al., 1995; Fadillioğlu, Erdoğan, Söğüt, & Kuku, 2003; Wahab, Akoul, & Abdel-Aziz, 2000; Woźniak & Anuszevska, 2002). Previous animal studies have reported that NAC has an antioxidant effect against tissue damage caused by free radicals in tissues such as the heart, liver and kidney (Fadillioğlu et al., 2003; Kaya et al., 2008; Sathish, Paramasivan, Palani, & Sivanesan, 2011; Sehirli, Sener, Satiroglu, & Ayanoğlu-Dülger, 2003). We chose NAC in our study because it is a strong antioxidant. Arıcı et. al. reported that heart tissue MDA level was highest in the DOC group. This finding supports the hypothesis that DOX toxicity is primarily due to free radical injury and NAC seems to prevent this damage (Arica et al., 2013).

Short-term findings show that MDA levels in the DOX group were significantly higher than in the DOX + NAC group ( $p < 0.05$ ). Additionally, TAC levels increased significantly and TOC and OSI levels decreased significantly in the DOX+NAC group compared to the DOX group. Our results were consistent with the thesis that DOX-induced heart damage and structural changes could be reduced by the application of an antioxidant. Our results show that NAC application prevents tissue damage against DOX-dependent cardiotoxicity.

## V. CONCLUSIONS

In conclusion, NAC was shown to be effective as a biochemical agent in preventing DOX-induced cardiotoxicity in rat models. More clinical trials on cancer patients are needed to evaluate the effect of NAC on DOX toxicity, how NAC affects the antitumor properties of DOX.



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## Implementation of Sport Education Model Learning for Improving the Learning Outcomes of the Ninth Grade Students in the Physical Education Learning in the Football Material Learning at SMP Negeri 1 Sampara



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**ABSTRACT:** Satrio Eka Putra: Implementation of Sport Education Model Learning for Improving the Learning Outcomes of the Ninth Grade Students in the Physical Education Learning in the Football Material Learning at SMP Negeri 1 Sampara. Thesis. Yogyakarta: Faculty of Sport and Health Sciences, Universitas Negeri Yogyakarta, 2024.

This research aims to: (1) describe the increase in student learning participation in Physical Education learning related to football material through the application of the sports education model, and (2) describe the increase in student learning outcomes in Physical Education subjects through the application of the sports education model.

This research was classroom action research conducted in three cycles, each cycle consisted of two meetings. The research subjects were 40 ninth grade students of SMP Negeri 1 Sampara (Sampara 1 Junior High School). The data collection techniques used observation and learning outcomes tests.

The results of research on the ninth grade students of SMP Negeri 1 Sampara through the application of sport education model can be concluded as follows: (1) there is an increasing students participation in the Physical Education learning through the application of sport education model with the average in precycle at 65% as it increases from 30.5% up to 95.5%. (2) research results show that applying the sports education model can also increase learning outcomes up to 82.5%.

**KEYWORDS:** Learning Outcomes, Participation, Sport Education Model, Physical Education

### I. INTRODUCTION

Education is a process of developing one's potential both physically and spiritually so that a goal can be realized. Education can be interpreted as a benchmark for a nation, because with education a nation's civilization will develop or not, starting from the quality of education. At the same time, it also shows a nation in its development as the next generation to build a perfect generation. In this case, teachers play an important role in developing the potential of human resources continuously. One of the main goals of education is to ensure that students can apply the knowledge they acquire in different ways and in different situations. However, this expected "transfer" does not always occur and, therefore, the knowledge gained cannot be used flexibly in different contexts. One way to minimize this problem is to understand how transfer occurs and what learning conditions can enhance this process (Hajian, 2019).

The curriculum is a set of educational efforts or plans carried out in the learning process which aims to achieve educational goals and as a guideline in the implementation of teaching in the field of education both inside and outside school. The curriculum is flexible where its implementation is carried out according to regional conditions and the abilities of students or children. Apart from being flexible, the curriculum should also be continuous or sustainable. In other words, the curriculum in learning should be continuous between one class level and another and between one school level and another. So that the objectives of the curriculum can be achieved well. This process requires teacher involvement for successful curriculum and school development. A good curriculum must have goals, philosophy, and targets, experiential learning, learning resources, and assessments included in special education programs (Alsubaie, 2016).

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According to Nana Sudjana in Fitrianto (2018:19) defines that student learning outcomes are actually changes in behavior, which include cognitive, affective and psychomotor aspects. According to Sudjana in mapeasse (2009), learning outcomes are the abilities that students have after experiencing learning experiences. In line with the opinion of Mapeasse (2009), learning outcomes are students' overall learning achievement, which shows basic competencies and the degree of relevant behavioral change. All aspects of behavior (cognitive, affective and psychomotor) include learning outcomes, according to the theory and understanding of learning outcomes above. As stated in the Malaysian Qualifications Agency (MQA) November 2007, learning outcomes are statements that explain what students must know, understand and be able to do after completing a period of study. Learning outcomes are a reference for standards and quality as well as for curriculum development in terms of teaching and learning. Meanwhile, learning objectives describe the intended goals and expected outcomes of teaching activities and establish the basis for assessment.

Siedentop said that his book is a curriculum model for physical education learning. The sport education model (SEM) was designed by Siedentop to provide students with a holistic sport-based experience. As research on SEM continues, aspects of interest are the impact on (a) students with low levels of motivation and (b) the opportunity to engage in health-enhancing levels of physical activity (Perlman, 2012). The main goal of Physical Education is to create authentic sports experiences for students in physical education. The main goal of Sports Education is to effectively increase students' competence, literacy, and enthusiasm around a sport or activity. To achieve this goal, students who take part in Sports Education must not only have competent performance, but must also be able to demonstrate sports literacy by showing that they value, understand and appreciate sports. Lastly, students who take part in Sports Education must be able to show their enthusiasm for sports by promoting a positive sports culture (siedentop, 1994).

There is a growing body of literature aligning SEM with national, state, and regional curricula around the world. For example, SEM has been aligned with the United States national content standards, the physical education syllabus in Australia and the United Kingdom national curriculum. The inherent flexibility of SEM (e.g. prioritizing fair play aspects to focus on affective learning domains) allows teachers and curriculum coordinators to align the model to the diverse needs of their student populations and guide educational documents (Chu & Zhang, 2018). Implementation of SEM in every school class. Research results show that SEM implementation has grown rapidly over the past five years to include all learning domains: physical, social, cognitive, and affective. However, such implementation is not easy and demands certain teacher training. SEM appears to be an appropriate pedagogical approach for practicing sports while developing motor skills, tactical-technical knowledge, and values (Evangelio et al., 2018).

## II. RESEARCH METHODS

The research method used in this research is classroom action research, namely action research carried out in class. This research was carried out collaboratively and participatory, meaning that the researcher did not conduct the research alone, but collaborated or collaborated with research partners by carrying out this research step by step. This research model is Kurt Lewin's model, which consists of planning, action, observation and reflection (Pardjono, 2007). The location of this research is SMP Negeri 1 Sampara which is located in Rawua Village, Sampara District, for the 2023/2024 academic year. This research was carried out in 3 cycles consisting of 6 meetings and will apply learning using the Sport Education model. The subjects of this research were class IX students of SMP Negeri 1 Sampara. 2023/2024 Academic Year, totaling 40 students.

## III. RESEARCH RESULT

### a. cycle I

No	Indicator	Presentation	
		Pre cycle	Cycle I
1	Presence	70,00%	75,00%
2	Readiness	62,00%	73,33%
3	Enthusiastic	65,00%	77,50%
4	Liveliness	65,00%	79,17%
5	Involvement	65,00%	75,83%
	Average	65,00%	76,17%

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Increased student participation after taking action in cycle I in the physical education learning process. The change in learning participation was due to the learning process carried out by applying the sport education learning model that students began to like and students began to adapt to the new learning process. Because the learning applied is different from the usual learning, then in this first cycle students began to have a sense of interest so that it has a positive effect on student learning participation. The increase can be seen from the situation before the action was taken, namely 65% and after the action in cycle I it became 76.17%, indicating that the application of the sport education learning model has a positive effect on student learning participation. Although there are still many students who are not very interested in the learning process.

Kriteria	Description	Total	Presentase (%)
Very good	Completed	3	7,50%
Good	Completed	21	52,50%
Simply	Completed	3	7,50%
Less	Not complete	13	32,50%
Total		40	100,00%

Based on the results of the description above, it can be identified that the learning outcomes of students in learning physical education, especially soccer games in cycle I show completeness of 76.50% or 27 students. While those who have not reached completeness are 32.50% or 13 students.

### b. cycle II

No	Indikator	Presentasi	
		Siklus I	Siklus II
1.	Kehadiran	75,00%	87,50%
2.	Kesiapan	73,33%	83,33%
3.	Antusias	77,50%	92,50%
4.	Keaktifan	79,17%	85,00%
5.	Keterlibatan	75,83%	82,50%
	Rata-rata	76,17%	86,17%

There was an increase in student participation after the action in cycle II in the physical education learning process. There was a change in learning participation because the learning process carried out with the application of the sports education model was increasingly favored and students were increasingly interested in the new learning process. Because the learning applied is different from the usual learning, then in cycle II this has a positive effect on student learning participation. The increase can be seen from the average state of cycle I, which was 76.17%, which increased to 86.17% in cycle II. The 10% increase shows that the application of the sports education model has a positive effect on student learning participation. Although there are still some students who have not really improved in the learning process.

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Kriteria	Keterangan	Jumlah	Presentase (%)
Sangat baik	Tuntas	5	12,50%
Baik	Tuntas	21	50,50%
Cukup	Tuntas	5	12,50%
Kurangan	Belum tuntas	9	22,50%
Jumlah		40	100,00%

The description above can be identified that student learning outcomes in physical education learning in cycle II showed completeness of 77.50% or 31 students. While those who have not reached completeness are 22.50% or as many as 9 students.

### c. cycle II

No	Indikator	Presentasi	
		Siklus II	Siklus III
1.	Kehadiran	87,50%	100%
2.	Kesiapan	83,33%	93,33%
3.	Antusias	92,50%	95,00%
4.	Keaktifan	85,00%	95,00%
5.	Keterlibatan	82,50%	94,17%
	Rata-rata	86,17%	95,50%

The conclusion from the diagram above can be seen that there was an increase in student participation after the action was taken in cycle III in the physical education learning process. The occurrence of changes in learning participation is due to the learning process carried out by applying the sport education learning model which is increasingly favored and students are getting used to the application of this model. In addition, students are increasingly interested in the new learning process. Because the learning that is applied is different from the usual learning, then in cycle III it has a positive effect on student learning participation. This increase shows that the learning process has been successful and is proof of the effectiveness of the application of the sport education model in the physical education learning process. The increase can be seen from the average state of cycle II which is 86.17% increased to 95.5% in cycle III. The increase of 9.33% shows that the application of this model has a positive effect on student learning participation.

Kriteria	Keterangan	Jumlah	Presentase (%)
Sangat baik	Tuntas	7	17,50%
Baik	Tuntas	21	52,50%
Cukup	Tuntas	5	12,50%
Kurang	Belum tuntas	7	17,50%
Jumlah		40	100,00%

Based on the results of the description above, it can be identified that the learning outcomes of students in learning physical education, especially in soccer games in cycle III, show completeness of 82.50% or 33 students. While those who have not reached completeness are 17.50% or as many as 7 students.



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## IV. DISCUSSION

The implementation of classroom action research aims to increase student learning participation. In addition to learning participation, researchers also want to know the learning outcomes obtained during learning with the application of the sports education model. This research was conducted in class IX Smp Negeri 1 Sampara by applying the sport education model. Starting from student participation, according to Thoedorson in Mardikanto (1994) suggests that in everyday terms, participation is the participation or involvement of a person in a particular activity. Participation or involvement is passive but actively directed by those concerned.

The findings of this success from the aspect of student participation are that at the first and second meetings student participation in learning is lacking, it can be seen from the attitude of students who do not fully participate in the learning process, sitting on the sidelines, not carrying out their respective roles properly. But after that, from the second meeting to the sixth meeting, student participation began to be seen as they were ready in the field before learning began, actively involved in the learning process, students followed the course of learning well. With good student participation, the learning process becomes smooth.

Based on the results of the research during cycle I to cycle III, it shows that choosing the right teaching model will get maximum results. The role of the teacher is very important to determine the learning model. Basically, there are still many teachers who in delivering learning materials still tend to be monotonous according to their level of ability. Teacher interaction in physical education learning is influenced by several factors, the first of which is individuals such as experience, knowledge, and ability to master material which will ultimately affect their level of professionalism (Doolittle et al., 2016). Therefore, teachers are required to be more creative so that the learning process can run well. From the findings of the researchers mentioned that with the sports education model of the learning system using the competition method, students have the desire to win every match with it students become more happy to follow every physical education learning process, earnest and enthusiastic in following the learning process.

Along with the development of education comes the theory of permissive teaching, which is teaching that allows children to develop in freedom without much pressure. Learning should be fun, the teacher does not emphasize himself as a powerful person in learning. What is prioritized is the personal and emotional development of students so that they are free from mental turmoil. When the child's personality is free from emotional disturbance, the child will be an effective learner and happier. That theory is what makes the role and attitude of the teacher in the learning process with the sports education model less. The teacher here is not as dominant as in conventional learning models. The teacher acts as an evaluator based on the results of observations and report results made by the students themselves who have been given the task before. And in the learning process, the teacher does not really enter the learning process, because here students are required to be very active in learning and able to solve a problem on their own. This makes the teacher's performance lighter.

This method is believed to be able to develop aspects of physical fitness, movement skills, critical thinking skills, social skills, reasoning, emotional stability, good moral actions, healthy lifestyles and introduction to a clean environment through selected physical activities (Education, n.d.). Thus, to improve learning outcomes, students must first foster their participation during the learning process.

## V. CONCLUSIONS

Physical education learning outcomes also increased from the initial condition of 55% to 67.5% in cycle i. Cycle ii physical education learning outcomes increased by 10% to 77.5%. While in cycle iii physical education learning outcomes increased by 5% to 82.5%. So that from the data obtained it can be concluded that the sports education model can improve student learning outcomes in physical education learning.

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## Optimizing Small and Medium Enterprise of the Food Business through Halal Certification and Financial Report Training



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**ABSTRACT:** Kapas District is east of Bojonegoro District, the entrance to Bojonegoro City. Kapas District has several MSMEs that produce various products, including dry food, crafts, drinks and traditional cakes. Like MSMEs in general, MSMEs in the Kapas District area face different obstacles related to technology adoption, marketing, and capital. The community service program aims to solve problems faced by partners and focuses on halal certification training and preparing simple financial reports. In the halal certification training, knowledge will be provided regarding the importance of halal certification for consumers. A halal logo on the packaging shows that the traditional cake product is free from non-halal ingredients and is safe for consumption. Meanwhile, for training in preparing simple financial reports, participants will receive material on preparing financial reports quickly. The results of community service activities show that the participants understand the importance of the halal logo on the packaging. Still, some participants need to learn the procedures for obtaining halal certification. Participants also understand that compiling simple financial reports can help the business run well.

**KEYWORDS:** halal certification, MSMEs, financial reports

### I. INTRODUCTION

Indonesia has the largest Muslim population in Southeast Asia, even globally. According to the Royal Islamic Strategic Studies Center (RISSC) report entitled *The Muslim 500: The World's 500 Most Influential Muslims 2024*. According to the RISSC report, the Muslim population in Indonesia will reach 240.62 million people in 2023, the equivalent of 86.7 million people of the national population of 277.53 million people. Indonesia stands out as the largest halal market in the world. By tapping into the country's nearly 90 per cent Muslim population and growing middle-income Muslim consumer base, Indonesia's halal market is projected to continue to grow in the coming years [1].

One area in Indonesia with many MSMEs is Bojonegoro, especially the Kapas district. Kapas District is located east of Bojonegoro District, so it is the entrance to Bojonegoro City. Kapas District consists of 21 (twenty-one) villages, of which 10 (ten) villages are located in the northern area, and 11 (eleven villages) are located in the southern region of the railroad tracks and along the river route. The population of Kapas District is 50,110 people, with the main livelihood being farmers and farm labourers [2].

Based on the information obtained, the primary commodities produced in the agricultural sector are rice, soybeans and green beans. In the plantation sector, Kapas District is a centre for vegetables, secondary crops and various fruits such as salak and Californian papaya, so Kapas District is included in the KADEKA metropolitan area, which is a centre for metropolitan-based economic development with the superior commodity being salak wedi [2].

Apart from having various commodities, Kapas District has several MSMEs that produce multiple products, including dry food, crafts, drinks, and traditional cakes. Like MSMEs in general, MSMEs in the Kapas District area also face various obstacles related to technology adoption, marketing, and equity.

Based on the results of information collected by the community service team, traditional cake MSME business actors need help to market their products because they have to compete with similar large-scale businesses, which can affect the selling price of the product. For this reason, business actors must prepare financial reports to make determining the right selling price easier. Business people also often need help knowing the calculation of business profits. The most important things for business actors are physical money and financial records. Even if you have notes, they are usually only in the form of notes or proof of payment, while the others are not used.

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Preparing financial reports is something that business owners often neglect. Many factors are the cause, including a need for more understanding by business actors regarding the management of financial report administration and a low awareness of business owners regarding the benefits of managing financial report administration. Meanwhile, business owners will get several benefits if they manage business finances, including maintaining the continuity of business activities, knowing economic conditions, controlling and monitoring the use of money, controlling money resources and knowing business developments.

In the context of the globalization process, appropriate information support is needed for management decision-making in the form of financial reporting to optimize traditional cake MSMEs. Financial reports are critical for stakeholders (investors, lenders, and others) to ensure the reliability and quality of financial reporting

Business people must still be fully aware that financial reports are essential for business continuity. Business people pay less attention to preparing financial reports for their businesses because they believe their business will continue to run even without explicit control/control over several aspects of their business, especially in preparing financial reports. On the other hand, it shows that the income earned is not commensurate with the expenses used for family needs and different needs because business finances and family finances are separate.

Besides financial reporting problems, MSME traditional cake products do not include the halal certification logo on the traditional cake packaging. However, food and beverage products are currently required to include halal information. Based on information from the Ministry of Religion website, these products must be halal-certified by October 17 2024. Sanctions will be given if they do not have a halal certificate by that date [3].

For traditional cake MSME business people, food safety is essential. Food safety is intended to keep food safe, hygienic, high quality, and nutritious and does not conflict with people's religion, beliefs and culture. In addition, food safety is intended to prevent possible biological, chemical and other contamination that can disturb, harm and endanger human health [4]. Thus, business people must include an official halal logo to show that MSME traditional cake production in Kapas District already has halal certification and is safe for consumption.

This obligation is by Law Number 18 of 2012 (Food Law). Article 97 explains that food business actors must include halal labels on food packaging regarding halal labelling. This applies to both domestic producers and imported food producers entering Indonesia. The inclusion of this label in and on food packaging is displayed in Indonesian clearly and firmly so that it is easily understood by the public [4].

Furthermore, in Government Regulation 69 of 1999 concerning Food Labels and Advertisements, the regulation of including halal on food labels is regulated in a separate article, namely Article 10 and Article 11. However, so that there is no visible separation between food labels and halal information as part of the information that must at least be contained on the label, this Government Regulation creates a common thread by stating that the halal statement is an inseparable part of the label [4]. Based on the background above, the objectives of this paper are (1) to provide knowledge and skills to MSME entrepreneurs in implementing halal certification and (2) to provide knowledge and skills to MSME entrepreneurs in preparing financial reports.

## II. LITERATURE REVIEW

### A. Halal Certification

Muslim and non-Muslim communities have widely accepted the concept of halal. Halal is discussed as the standard of choice for both groups worldwide [5]. The research results of [5] supported the premise that non-Muslims care about food safety, which positively influences their attitudes towards halal products. They found that attitudes towards halal food and perceived control were significant predictors of intention. Consumer demand for guaranteed halal products has increased significantly in many countries. Therefore, demands for the establishment of several certification bodies to legalize halal products have become mandatory in several countries. Halal certification refers to the official recognition of the processes of preparation, slaughter, cleaning, handling and other related management practices regulated by an established legal entity [6]. The main aim of halal certification is to ensure that the halal requirements of an item comply with Islamic principles of hygiene, humane treatment of animals, and other rules in the production process [7]. The certification process is regulated in Law Number 33 of 2014 concerning Halal Product Guarantees, which states that various products circulating and sold to the public must be guaranteed to be halal through halal certification. Technically, halal certification in Indonesia is carried out by BPJPH (Halal Product Guarantee Organizing Agency), under the auspices of the Ministry of Religion of the Republic of Indonesia. BPJPH collaborates with MUI and LPH (Halal Inspection Agency) to determine the halal guarantee of a product for public consumption [8]. Halal certification produces a halal label, which indicates that a product meets the halal guarantee criteria obtained through halal certification. A halal label must be owned by business owners who have completed halal certification. The halal label shows that the product meets various halal requirements and standards through the halal certification process [9], [10].

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## B. Financial Report

According to the Indonesian Accountants Association [11] in Statement of Financial Accounting Standards (PSAK) No. 1 concerning the Presentation of Financial Reports, a financial report is a structured presentation of the financial position and financial performance of an entity. The purpose of financial reports is to provide information about the financial position, financial performance and cash flows of an entity that is useful for most users of financial statements in making economic decisions. Financial reports also show the results of management's accountability for the use of the resources entrusted to them.

## III. METHOD

The activity method used in this community service is the action research method, used by carrying out activities while solving problems faced by participants. [12] state that action research, as a research method, is founded on the assumption that theory and practice can be seamlessly integrated with learning from the results of planned interventions after a detailed diagnosis of the problem context. Action research also includes an action cycle based on reflection, feedback, evidence, and evaluation of previous actions and current situations. Action research aims to contribute to practical problem-solving in urgent problematic situations and achieve social science goals through joint collaboration within the framework of mutually acceptable ethical work [13]. The research process takes place over time, between "finding" during research and "action learning". In this way, action research connects theory with practice. The stages carried out are:

1. Observation and preparation : This stage began with observations made by the community service team regarding the traditional cake production business carried out by MSMEs in Kapas District, Bojonegoro Regency.
2. Partner Problem Analysis : The Community Service team tries to identify the problems faced by partners. Partners in this activity are traditional cake MSME business actors in Kapas District, Bojonegoro. The partner's problem is that they need help compiling financial reports.
3. Coordination: At this stage, the team coordinates to determine the steps to be taken before carrying out halal certification training activities and preparing financial reports.
4. Training: This stage is the final stage of community service activities. The training was carried out in Kapas District, Bojonegoro Regency.

## IV. RESULT AND DISCUSSION

The training was conducted at the Klampok Village Hall, Kapas District, Bojonegoro Regency, with 13 participants. Before attending the training, materials and questionnaires were distributed to participants. The training participants are traditional cake MSME entrepreneurs in Kapas District. The Head of Klampok Village, Mr. Agus Suprianto, opened the training.



Picture 1. Opening of Community Services

The training material is presented in two sessions. Mr Rasyidi Faiz Akbar delivered the first session. In this session, participants received material about preparing simple financial reports. Most business actors are housewives who carry out the production process at home, so their expenses are still one with family expenses. The interviewee emphasized the importance of separating

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expenses for business and expenses for the family so that business people can know the actual profits from the business they manage.

In the second session of the training, halal certification was discussed by Mrs. Yessy Artanti. In this session, participants learned what raw materials are and how to get halal certification. Halal certification is essential for food SMEs because if, by 2024, business actors do not have halal certification, they will receive sanctions from the government.



**Pictures 2. Training Activities**

Traditional cake business people seemed enthusiastic about following the material provided by the two speakers. They can discuss directly, asking about the difficulties faced when preparing simple financial reports and the requirements that must be met for obtaining halal certification.

Some MSME products still have straightforward packaging, only wrapped in plastic or leaves without labels. To obtain halal certification, MSME products must have a label and PIRT. For this reason, they are asked to provide labels and register PIRT for their products.

After the training, participants were allowed to fill out a questionnaire. This questionnaire aims to obtain input regarding training materials and training implementation. This input will help the community service team carry out training better at another time.

**Table 1. questionnaire result**

No	Question	Yes %	No %
1.	Have you ever recorded financial reports?	23.08	76.92
2.	Do you have halal certification?	7.69	92.31
3.	If you have never recorded financial reports, do you intend to register financial reports?	100.00	0.00
4.	If you don't have halal certification, do you intend to apply for halal certification?	100.00	0.00
5.	Did you understand the importance of recording financial reports before this training?	76.92	23.08
6.	Did you understand the importance of having halal certification before this training?	76.92	23.08
7.	After this training, will you record financial reports regularly?	100.00	0.00
8.	After this training, will you apply for halal certification?	100.00	0.00

Based on the questionnaire results in Table 1, it can be seen that most participants have yet to record simple financial reports, and only one business actor has halal certification. However, after attending the training, business actors plan to start being orderly in recording financial reports. They also plan to follow the halal certification application process. Mrs. Yessy Artanti will



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accompany the process of applying for halal certification. The following are participant products that already have halal certification.



Picture 3. Halal Certified SMES product

Based on the results of the second part of the questionnaire regarding training facilities, most participants agreed that the implementation time and training location were by the participants' wishes. Regarding training materials and consumption, most participants agreed with what was provided during the training.

Table 2. Training Evaluation Result

No	Question	Respond				
		SA %	A %	N %	D %	SD %
<b>Training Facilities</b>						
1.	The time chosen to carry out the training is appropriate	23.08	69.23	7.69	0.00	0.00
2.	The training environment is comfortable	15.38	61.54	23.08	0.00	0.00
3.	Facilities and infrastructure, including facilities provided by the committee, are what the training participants expect.	15.38	46.15	38.46	0.00	0.00
4.	The consumption provided is quite adequate.	38.46	53.85	7.69	0.00	0.00
<b>Training Activities</b>						
5.	The trainer explained the material clearly during the training and accompanied the participants until completion.	46.15	38.46	7.69	0.00	7.69
6.	Training activities begin and end on time according to the activity schedule.	46.15	38.46	7.69	0.00	7.69
7.	During the training, participants felt happy and enjoyed it	53.85	30.77	7.69	0.00	7.69
8.	This training is beneficial, especially for business people	53.85	30.77	7.69	0.00	7.69

Noted: SA = Strongly Agree; A = Agree; N= Neutral; D= Disagree; SD = Strongly Disagree

During the training activities, most participants strongly agreed that the resource person could explain the material well and accompany the participants until completion. The participants also felt that they enjoyed the training and felt the benefits for business continuity. Most participants felt there needed to be more training time because they wanted to discuss the halal certification application process.

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## V. CONCLUSIONS

After participating in this community service activity, it is hoped that traditional cake MSME business actors in Bojonegoro Regency will benefit from preparing simple financial reports and the halal certification registration process. Business actors are expected to be able to know the development of their business by preparing simple financial reports regularly. Having halal certification can help MSMEs guarantee the halal and safety of their products.

## ACKNOWLEDGMENT

We thank the Undergraduate Management Study Program, Faculty of Economics and Business, and State University of Surabaya (UNESA) for supporting this research.

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## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?



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**ABSTRACT:** This study aims to find out the impact of internal control, good governance and whistleblowing system on fraud prevention on the District Inspectorate of South Sumatra Province. The type of research used is associative, sampling using saturated samples, the samples examined are 41 auditors available at the Provincial Inspectorate of South Sumatra. The data used is primary data, the data collection technique is through interviews and questionnaires. The method of data analysis used is quantitative. The data analysis techniques used in this study are validity tests, rehabilitation tests, descriptive statistics, classical assumption tests and hypothesis tests. Internal controls, good governance and whistleblowing systems have a significant impact on fraud prevention.

**KEYWORDS-** Impact of Internal Control, Good Governance, Whistleblowing System, and Fraud Prevention

### I. INTRODUCTION

Government institutions have an important role to play in achieving a country's objectives, and in order to them, they must be supported by a good attitude or action of the civil apparatus of the state. In reality, there are still a lot of fraud issues happening in government agencies, both at the central and regional levels. Fraud is not something that's easy to find. The perpetrator will commit Fraud because he feels confident that the results of his actions will not be found. Therefore, management should be alert to the possibility of fraud that may occur in the government sector.

Fraud is very detrimental to various parties as it can destroy the organization. Indications of fraud or misconduct in an organization can occur in various layers of the organization's work, both in the organisation's management and senior officials of the agency. Fraud is an act intentionally committed to deceive or lie, a method or way not honestly performed to take or destroy money, property, or property rights of another person legitimately, either as a result of an act or a fatal consequence of the act itself. (Dien, 2020:14).

One of the triggers of fraud is that it opens up an opportunity or an opportunity to commit fraud. The opportunity to commit fraud is strongly linked to the effectiveness of designing and implementing internal controls and good governance. The more ineffective the internal control and good Governance, the more open the risk of fraud. (Diaz, 2013:196).

Fraud prevention is an effort made by all parties to reduce the causes of fraud that can be suppressed by means of an effort, which minimizes the chances of a fraud, reduces the pressure on any government agency to be able to meet its needs, eliminates the emergence of a sense of rationalization that gives rise to justification for fraud. (Silviana, 2020:4).

Preventing Fraud There are three elements to be taken into account to prevent fraud: creating and restoring a culture of honesty and high ethical values, implementing and evaluating anti-fraud control processes, and developing supervisory processes. (oversight process). Fraud can be prevented by reviewing legislation, recruiting and promoting appropriate employees according to established qualifications, undertaking training to improve the quality of internal controls, and adhering to the rules that have been made so that internal performance can run smoothly. In the implementation and evaluation of anti-fraud control processes, fraud actions can be prevented by identifying and measuring potential fraud risks, reducing the likelihood of such fraud, and implementing and monitoring internal controls. (Nugroho & Hartono, 2022).

Internal control is essential in running the wheel of government. This internal control can work if all the elements involved in government have the knowledge, ability and will to run simultaneously and sustainably. In order for the maintenance of government to go well, the internal control of government should be carried out simultaneously and continuously, from

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planning, implementation, supervision, to accountability running orderly, controlled and effective and efficient, in the development of internal control processes, fraud actions can be prevented by carrying out proper internal controls. (Ayem & Kusumasari, 2020).

Effective and efficient internal government controls are expected to be able to identify and suppress the symptoms of fraud. Therefore, the inspectorate has a very strategic position, as a catalyst and dynamizer in successful regional development related to smooth course of regional government, optimally development, construction of regional apparatus, and so on. So the local inspectors as internal supervisors can be a spear to bring accountability and transparency to good governance. The essence of internal control as a preventive measure of the Inspectorate is to implement internal controls, both in the internal environment of the inspectorate itself and throughout the regional device, in order toward good governance. (Anisa & Syarif, 2020).

Good governance in the environment of government agencies is a must. With the government's commitment to good governance, then the performance on the maintenance of government organizations becomes the concern of the government to be nurtured, one of which is through an effective supervisory system, by enhancing the role of the Good Governance Inspectorate. (Bakri, dkk 2019).

Good Governance is the maintenance of management or management within the government in a solid and accountable manner and based on the principles of efficient markets and also the prevention of fraud both administratively and politically. The concept of good governance requires synergies between the three main actors, the government, the private sector, and civil society. These three actors have roles in managing resources, social, economic, and cultural environments. For the government or even the private sector, this is an innovation or breakthrough at the cutting edge in an attempt to create reliable public managerial credibility. Good Governance helps to integrate the roles of government, the private sector, and society to common consensus, where implementation can be accountable and effective and effective. By paying attention to the values and the way good governance works (Fitriansyah & Marzuq, 2022).

The National Committee on Governance Policy (2008:1) stated that several other institutions in the world, such as the Organization for Economic Co-operation and Development (OECD) and the Global Economic Crime Survey, concluded that one of the most effective ways to prevent and eradicate practices contrary to good governance is through violation reporting mechanisms. (whistleblowing system).

The whistleblowing system emerged as the number of cases of fraud and financial irregularities increased. Whistleblowing is a form of action carried out by one or more officials in the government area to complain of alleged misconduct in the maintenance of local government. An act of deviation is an act or action that is contrary to the regulations of the laws, codes of ethics in the environment of the Local Government. (Sujana, dkk 2020).

Whistleblowing is an effective way to counter fraud by empowering whistle-blowers, and is considered to be a control mechanism for the process of checking and balancing against possible fraud. whistleblowing describes a form of moral protest involving members of other organizations who know something against the public interest has happened. (chairi, dkk 2022).

the phenomenon that has occurred in the inspectorate reports based on the dpc okut by syarif that in 2019 covered cases of corruption, the pmd and the inspectorate allegedly forced Camat and the kades made false statements. the empowerment of the community and the village (pmd) of the eastern oku district, where the pmd of the township, the head of the village and the treasury feel blacked by h.rusman, to cover up the corruption case of the oku 9 village fund east, the Camat and cadets were forced to make a false statement that they never asked for the apbn 2018 village fund to any village heads by the chief of service of the east oku pmd and the team of inspectors. criminal case alleged corruption of apbn village fund 2018, ogan district of komering ulu east, from the results of the investigation of the entire village heads of 305 villages in the 20 districts of oku east district. (sumateranews.co.id)

The phenomenon that occurs in government agencies is the presence of an opportunity to commit fraud in the process of financial management. one of the cases that occurred was the construction of a sriwijaya mosque worth rs. 130 billion because of corruption, which was built from 2015 until construction of the mosque was stopped since 2018, and is believed to damage the country up to rs. the mosque is often claimed to be the largest mosque in southeast asia. the project of the sriwijaya grand mosque was overthrown after the former governor of sumsel was found guilty of alleged corruption in the case of the grant fund for the construction of the sriwijaya grand mosque. in this case, the inspectorate of the province of south sumatra is responsible for overseeing the operational implementation of the general service and the layout of the premises. based on the information obtained from the preliminary survey conducted at the provincial inspectorate of south sumatra province, through an interview with Mr. Ilyas Rozi Atmadja, S.E as penal auditor. it can be concluded that internal control in the inspectorate can be maximized by meeting the number of quotas of its auditors as well as the discipline of its own reporters. in order to improve good governance and performance, the inspectorate recruits staff through a competence test, not just through

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recommendations like the current one, and does not recruit staff who do not have an auditor's certification, thus creating a good government.

The whistleblowing system can be maximized if the organization supports whistleblowing action and an inclusive whistleblowing program within the organization will encourage the people in it to raise the facts by creating a strong whistling program, educating all parties in the organization and responding to every complaint report carefully.

Fraud prevention is supposed to prevent the occurrence of budget fraud and can be maximized to reduce the risk of fraud.

### **Fraud prevention**

Fraud prevention is a pre-planned action to deceive/manipulate others so that other parties suffer losses and the perpetrator of fraud obtains profits both directly and indirectly (Cris, 2017: 13). Fraud is obtaining unfair profits from others (Marshall and Paul, 2019: 149). (Romney and Dan Paul, 2019: 220).

Fraud is any act of dishonesty, (abuse of position/circuit or deviation aimed at taking money) or property or resources of another person/organization by means of unreasonable, fraudulent, deceitful, defamation, bribery, deception, false advice, concealment, or other means of it, committed intentionally by someone, resulting in the loss of the organization or others or to the benefit of the perpetrator. (Bona, 2015: 2).

Fraud is a general term, and encompasses all kinds of means that can be used with a certain virtue, chosen by an individual, to gain from the other party by making a false presentation. (Zimelman, 2014: 7).

Based on some of the above understandings, it can be concluded that fraud prevention by creating a climate that prevents fraud from happening, enhances the difference in doing so, improves detection methods and reduces the amount of losses if fraud occurs.

### **Internal control**

Internal control is an activity of procedural nature that must be carried out in order to give reasonable assurance that an activity performed does not deviate from what it should be. Internal control is increasingly needed by organizations that want to carry out their activities effectively and efficiently. (Kadek & Niluh, 2022).

Internal controls include organizational structures, methods and measures that are coordinated to maintain organizational assets, check the rigour and reliability of accounting data, drive efficiency and encourage compliance with management policies (Mulyadi, 2019:129). Internal control is a process carried out to provide adequate assurances that the control objectives have been achieved (Nurul, 2021:30). Basically, internal control is the unity of organizational structures as well as supporting tools for monitoring activities related to the use of property of the organization and to minimize the occurrence of errors, fraud and misconduct occurring in the organization so that the organizational operational activities can go smoothly to support the achievement of the main objectives of the organisation. (Nurul, 2021:19).

Based on some of the above understandings, it can be concluded that internal control is a thoroughly integrated activity with the aim of exercising maximum supervision within an organization in an effort to its objectives.

### **Good Governance**

*Good Governance* It is one of the forms of ethical business implementation, good organizational governance produces integrated decisions. (Soemarso, 2019: 225). Good governance is a system that regulates and controls organizations that create added value for all stakeholders. Good Governance provides a framework for a balanced distribution of rights and responsibilities in accordance with rules and procedures for decision-making on corporate issues and provides a structure for organizational and performance monitoring purposes. (Diaz, 2013:199).

Good governance is often defined as good governance. Meanwhile, the World Bank defines good governance as a sustained, solid and responsible development management that is in line with the principles of democracy and efficient markets, avoiding misallocation of investment funds, and preventing corruption both politically and administratively, implementing budgetary discipline and creating legal and political frameworks for the growth of business activity. (Mardiasmo, 2018: 22-23).

Good governance is a form of decision making with a much more organized and structured positioning, with work mechanisms that are consistent with the rules of government institutions that have been outlined and ready to accept sanctions if those rules are violated. (Irham, 2017: 62)

The authors conclude the opinion of the experts above that good governance is a solid and responsible maintenance of development management that is in line with the principles of democracy and efficient markets, avoidance of misallocation of investment funds, and prevention of corruption both politically and administratively.



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### **Whistleblowing System**

*Whistleblowing system* is a system in an instance that allows whistleblowers to report acts that indicate fraud. Whistleblowing is an act carried out by one or more employees to leak fraud either by the organization or its superiors to another party (Dewi, 2020: 14). Whistleblowing is the disclosure of acts against the law, unethical/unmoral acts or other acts harmful to the organization or stakeholders committed by an employee or the organization's leader to the head of an organization or other agency that can take action on such violations (Theodorus, 2018: 61).

*Whistleblowing* is an act committed by an employee who trusts his business or a colleague involved in an offence or criminal activity, causing unnecessary losses, violating human rights, or contributing to an immoral violation (Rozmita, 2017: 62).

*Careful surveillance to facilitate early detection of fraud. It will also prevent fraud because the perpetrator who would do it realizes that "other people see". Monitoring by colleagues is an effective way to capture dishonesty, so Section 307 of the Sarbanes-Oxley Act 2002 requires all public organizations to have a Whistleblower system that facilitates officials and other parties to report suspicious activities (Zimbelman, dkk, 2014: 453). Based on some of the above interpretations, it can be concluded that the Whistleblowing System is a fraud disclosure and detection system, in order to facilitate internal and external parties reporting alleged fraud.*

### **Framework of Thought**

#### **Impact of Internal Control, Good Governance and Whistleblowing System on Fraud Prevention**

Evaluation of internal control processes, good governance and whistleblowing system against fraud prevention, fraud actions can be prevented by identifying and measuring the risk of fraud that may occur, reducing the likelihood of such fraud, as well as implementing and monitoring internal controls of good Governance and Whistleblowing system (Fitria & Nur, 2019).

Fraud prevention is an effort made by all parties in reducing the causes of fraud can be suppressed namely through internal control efforts, good governance and whistleblowing system asining management or management in government solidly and accountable and based on the principle of efficient market and also prevention of Fraud both administratively and politically (Bakri, 2019).

Research conducted by Rowa, Iza and Mei (2019), Fahmu and Arief (2022), Agus and Harti (2022); Aditya and Putra (2022); Nazzarrudin and Letje (2022). Monika (2019) argues that internal controls and good governance have a significant impact on fraud prevention. Contrary to the opinions of Ridho and Hafsa (2019), Mufidah and Amilia (2018), Atik, dkk (2022) and Dewi (2022), stated that internal control and good governance did not have a significant impact on fraud prevention.

Research carried out by Rizky (2020), Atmadja, Dkk (2017), Dally (2019), Yuniarta, DKK (2019), Gede, DK (2017) and Trisna (2017) argued that whistleblowing systems had a significant influence on the prevention of fraud. Contrary to the opinion of Sri and Nur (2022), Puji and Maulida (2021), Ary (2019) stated that whistleblowing systems have no significant impact on fraud prevention.

#### **Impact of Internal Control on Fraud Prevention**

Pengendalian internal dikaji ulang secara berkala guna memastikan bahwa dalam pelaksanaannya masih efektif mencegah Internal controls are reviewed periodically to ensure that their implementation remains effective in preventing errors, deviations and possible fraud. (Ikatan Bankir Indonesia, 2014:122). Have good internal control The most common way to prevent fraud is by having good control (Zimbelman, dkk, 2014:447).

Internal control evaluation is used to detect and prevent fraud, management needs to establish good and effective internal controls as one of the elements of fraud prevention (Diaz 2013. 196).

The more an organization develops, the more difficult the management task of controlling the organization becomes so that the goals set by the top management can be achieved, the security of the organization's assets guaranteed and operational activities can be carried out effectively and efficiently, management needs to have a good internal control structure and effectively prevent fraud. (Betri, 2020: 246).

Research conducted by Rowa, Iza and May (2019), Fahmu and Arief (2022), Agus and Harti (2022); Aditya and Putra (2022); Nazzarrudin and Letje (2022). (2019) Contrary to the opinions of Ridho and Hafsa (2019), Mufidah and Amilia (2018), Atik, dkk (2022) and the goddess (2022) Stating that internal controls have no significant influence on fraud prevention.

#### **The Impact of Good Governance on Fraud Prevention**

*Good governance* conducted by management designed to eliminate or at least suppress the possibility of fraud. Good governance encompasses organizational culture, policies and delegation of authority. (Fitrawansyah, 2014: 15).

*Good governance* All stakeholders, the management of the organization, should understand that by applying Good Governance, including considering all the principles and functions of Good governance, it will be possible to prevent or reduce the occurrence of fraud. (Diaz, 2013: 196).



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Studies conducted by Rowa, Iza and May (2019), Fahmu and Arief (2022), Agus and Harti (2022), Aditya and Putra (2022), Nazzarrudin and Letje (2022), Monika (2019) argue that good governance has a significant influence on fraud prevention. Contrary to the opinion of Ridho and hafsah (2019), Mufidah and Amilia (2018), Atik, dkk (202) and dewi (2021) stated that good Governance does not have a significant impact on the prevention of fraud.

### The impact of whistleblowing systems on fraud prevention

*Whistleblowing System* implemented to help prevent or mitigate fraud. A good whistleblowing system is one of the most effective anti-fraud tools. (Zimbelman, dkk, 2014: 453).

An organization needs to have a whistleblowing complaint system, so employees can maintain anonymity when reporting fraudulent behaviour. (Chairi, dkk 2022).

*Whistleblowing system* It's a means to channel fraud, but it's not a means of monitoring member-to-member activities. The existence of this system, gives the effect of fear to every employee to commit fraud because at the time of doing the activities of each other have been doing surveillance. This is what makes it possible to prevent a fraud that will happen. (Sujana, dkk 2020).

Research by Rizky (2020), Atmadja, Dkk (2017), Dally (2019), Yuniarta, dkk (2019), Gede, DKK (2017) and Trisna (2017) argued that whistleblowing systems have a significant influence on fraud prevention. Contrary to the opinion of Sri and Nur (2022), Puji and Maulida (2021), Ary (2019) stated that the system has no significant impact on the prevention of fraud.

### Hypothesis

Based on the previous framework of thought, the hypothesis submitted as an interim answer to the formula of the research problem is as follows:

- H1 : Internal controls, good governance and whistleblowing systems have an impact on fraud prevention.
- H2a : Internal controls affect fraud prevention
- H2b : *Good Governance Impacts on Fraud Prevention*
- H2c : *Whistleblowing System Affects Fraud Prevention*

## II. RESEARCH METHODOLOGY

The type of research used in this study is associative research to find out the impact of Internal Control, Good Governance and Whistleblowing System on Fraud Prevention on the South Sumatra Provincial Regional Inspectorate.

The location of this research was carried out at the Regional Inspectorate of South Sumatra Province, located at Ade Irma Nasution River, Prince River, Ilir Tim, Palembang City, South Sumatera 30121.

Operational variables are properties or values of people, objects or activities that have certain variations that the researcher sets for study and then draws conclusions (Sugiyono, 2018:39). Operationalization of variables used in this study can be seen in the following table:

**Table 1. Variable Operationalization**

Variable	Definition	Indicator	Scale
<b>Fraud Prevention (Y)</b>	Fraud is an act or act of deliberate and unreasonable use of the organization's resources to obtain personal gain to the detriment of the organisation concerned or others.	<ol style="list-style-type: none"> <li>1. Create and maintain a culture of honesty and ethics</li> <li>2. Assess and reduce the risk of fraud</li> </ol>	<b>Ordinal</b>
<b>Internal control (X<sub>1</sub>)</b>	Internal control is an activity of procedural nature that must be carried out to give reasonable assurance that an activity is not deviating from what it should be.	<ol style="list-style-type: none"> <li>1. Control Environment</li> <li>2. Risk Assessment</li> <li>3. Control Activities</li> <li>4. Information and Communication</li> <li>5. Monitoring Activities</li> </ol>	<b>Ordinal</b>
<b>Good Governance (X<sub>2</sub>)</b>	<i>Good governance is a system or principle that regulates and controls organizations that create added value for all stakeholders.</i>	<ol style="list-style-type: none"> <li>1. Transparency</li> <li>2. Accountability</li> <li>3. Responsibility</li> <li>4. Independence</li> <li>5. Obligation</li> </ol>	<b>Ordinal</b>

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<b>Whistleblowing System (X<sub>3</sub>)</b>	<i>A whistleblowing system is a fraud detection system designed to facilitate internal and external reporting of alleged fraud.</i>	<ol style="list-style-type: none"> <li>1. Anonymity</li> <li>2. Independence</li> <li>3. Access</li> <li>4. Further action</li> </ol>	<b>Ordinal</b>
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Source: Author, 2023

The population used in this study was 41 Auditors working at the South Sumatra Provincial District Inspectorate.

The sample surveyed was 41 auditors working in the South Sumatera Provincial District inspectorate, where each respondent had a functional position consisting of Auditor Madya, Young Auditor, and First Auditor.

**Table 2. List of functional departments of auditors working at the District Inspectorate of South Sumatra Province**

No.	Auditor's functional department	Amount
1	Madya	10
2	Muda	27
3	Pertama	4
	<b>Amount</b>	<b>41</b>

Source: District Inspectorate of South Sumatra Province, 2023

The data used in this research are primary and secondary data. Primary data is obtained through the dissemination of the questionnaire to the respondents, which is the Auditor who works in the office of the Regional Inspectorate of the Province of South Sumatra.

The data collection method used in this research is by using Interviews and questionnaires. The interview is done directly by asking questions and answers directly to the Auditor who works at the office of the Regional Inspectorate of South Sumatera Province. The questionnaire is done by giving a set of questions to Auditors who work at the Office of the Provincial Inspection of South Sumatra Province.

The method of data analysis used in this study is quantitative analysis. Quantitative analyses are carried out using statistical testing of the results of the questionnaire, then the test results will be described using sentences. In other words, qualitative analysis is first used then proceeded with qualitational analysis. The scale of this research uses the likert scale. The Likert Scale is used to measure the attitudes, opinions and perceptions of a person or a group about social events or symptoms. In social research symptoms have been specifically defined by the researcher, which is later referred to as the research variable. Using the likerty scale, the variable to be measured is calculated into dimensions, the dimensions are calculated in sub-variables and then the sub- variables are again determined into measurable indicators. These measured indicators can be used as a pushpoint to create instrumental items that are questions or statements to be answered by respondents. Each answer is associated with a form of statement or support of attitude expressed in the following words:

Totally agree.	= SS	= 5
Agree	= S	= 4
Neutral	= N	= 3
I don't agree	= TS	= 2
Very disagreeable	= STS	= 1

The main condition of testing analysis using data regression should be intervals, then the data obtained from ordinal-shaped questionnaires are scaled into intervals. (Microsoft Successif Interval).

Data analysis techniques in this study were assisted by the Program For Special Sciene (SPSS). Before doing the analysis, according to the requirements of the OLS method (Ordinal Least Square) then first have to do the validity test, reliability test, classical assumption test.

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### Validity Tests and Reliability Tests

#### Validity Test

A validity test is used to measure the validity or invalidity of a questionnaire. A question is deemed to be valid or valid if the question on that question is able to reveal something that will be measured by that questioner. The significance test is performed by comparing the count  $r$  value (the Corrected item-Total Correlation value on the Cronbach alpha output) with the table  $r$  value for the degree of freedom  $(df) = n - 2$  ( $n$  is the sample number)

- 1) If the  $r$  value counts  $> r$  table then the element or question is valid
- 2) If the value  $r$  counts  $< r$  table then that element or query is invalid (Wiratna, 2019:157).

#### Reliability Test

Reliability test is performed on the validly specified question item. This test is used to measure a questionnaire that is an indicator of a variable or construction. A questionnaire is said to be reliable or reliable if a person's answer to a statement is consistent or stable over time. A variable is said that it is reliable when it has Cronbach Alpha  $> 0.60$  (Wiratna, 2019:158).

#### Descriptive statistics

Descriptive statistics attempt to describe the various characteristics of data derived from a sample. Descriptive statistics can produce tables, graphs, and diagrams. Descriptive statistics in research is basically a process of transforming research data in the form of tabulations so that it is easy to understand and interpret. Tabulations present summaries, arrangements, and compilations of data in the form of maximum values, averages, standard deviation values. (Wiratna, 2020: 173)

#### Classical Assumption Test

##### Data Normality Test

The normality test aims to test whether in a regression model, a bound variable and a free variable both have a normal distribution or not. The data normality test can be performed using the Kolmogorov Smirnov one-way test. If significant  $> 0, 05$  then the variable is distributed normally and vice versa if significant  $< 0,05$  then the non-normally distributed variable (Wiratna, 2019:225).

### Validity Tests and Reliability Tests

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#### Multicollinearity test

A multicollinearity test is required to determine if there are no independent variables that have similarities between independent variable in a model. In addition, these tests are also to avoid the habit in the decision-making process regarding the influence on the partial test of each independent variable against the dependent variable. If the VIF is produced between 1-10 then there is no multicollinearity (Wiratna, 2019:158).

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

### Heteroscedasticity test

Heteroscedasticity is a test of the occurrence of residual variance between one observation period and another. How to predict the absence of heteroscedasticity in a model can be seen by scatterplot patterns, regression that does not occur heteroscedasticity if data points spread above and below or around the number 0, data points do not gather only above or below, the spread of data points should not form wave pattern spread then narrowed and expanded again, data point spread is not controlled (Wiratna, 2019:159).

### Hypothesis Test

#### Double Linear Regression Analysis

Double regression analysis is a method of analysis that consists of more than two variables namely an independent variable and one dependent variable, there are classical assumptions that must be met namely normal distributed residual, no multicollinearity, no heteroscedasticity, and no autocorrelation (Wiratna, 2020:180) The formula for the multiple regression equation can be presented as follows:

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

Description:

- Y = Fraud Prevention
- A = Constant value (Y value when X = 0)
- $\beta_1$  = Internal Control Regression Coefficient
- $\beta_2$  = Good Governance Regression Coefficient
- $\beta_3$  = Regression coefficient of the Whistleblowing System
- $X_1$  = Internal control
- $X_2$  = *Good Governance*
- $X_3$  = *Whistleblowing System*
- E = *Error term*

#### Determination Coefficient Test $R^2$

The determination coefficient that is often symbolized by  $R^2$  in principle sees the great influence of a free variable on a bound variable. When the number of determination factors in a regression model continues to be small or closer to zero means the smaller the impact of all the free variables on a tied variable or the closer the value of  $R^2$  to 100% means the greater the influence (Syafriada, 2021:54). As for the determination coefficient formula as follows:

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

Description:

- KP = determination coefficient value
- $R^2$  = correlation value

#### Test the hypothesis together (Uji F)

The joint hypothesis test is a test of the significance of the equation used to determine how much the influence of free variables ( $X_1, X_2, X_3$ ) jointly – equal to non-free variables – is. (Y). (Wiratna, 2020: 182)

a) Formulate a Hypothesis

H01 : Internal controls, good governance and whistleblowing systems have no impact on fraud prevention

Ha1 : Internal control, Good Governance and Whistleblowing System Influence on Fraud Prevention

b) Pointing Real Side Significant level of 5% real side of the t table determined by free degree (db) = n-k-1, real side (a) means the value of the F table, the actual side of F table defined by the free degree.

(db) = n-k-1.

c) Conclusion

If F counts < F table, then H0 accepted Ha rejected

If F counted > F table, then H0, or Ha accepted

#### Hipotesis Partial Hypothesis Testing (Uji T)

Partial hypothesis testing is a test of the individual partial regression coefficient used to find out what independent variables ( $X_1, X_2, X_3$ ) individually affect the dependent variable (Y). (Wiratna, 2020:161 -164).

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

Step-step in partial hypothesis testing is:

Formulate a hypothetic

- (1) **Hypothesis 2.A Impact of Internal Control on Fraud Prevention**  
 H02a : Internal controls have no impact on fraud prevention  
 Ha2a : Internal controls affect fraud prevention
- (2) **Hypothesis 2.b Impact of Good Governance on Fraud Prevention**  
 H02b : *Good Governance has no impact on fraud prevention*  
 Ha2b : *Good Governance Impacts on Fraud Prevention*
- (3) **Hypothesis 2.c The impact of whistleblowing systems on fraud prevention**  
 H02c : *Whistleblowing system has no impact on fraud prevention*  
 Ha2c : *Whistleblowing System Affects Fraud Prevention*

Pointing Real Side

A significant level of 5% real side of the t table is determined by free degrees (db) = n-k-1, real side (a) table t values, real level and F table is defined with free degree ( db) = N-k-1.

Conclusion

If t counts > t tables, then H0 is rejected and Ha is accepted.

If n counts < t tabels, then the H0 receives Ha is refused.

If sig > 0,05 then H0, then H0.

If sig < 0,05, then it rejects H0.

### 3. RESULT AND DISCUSSION

#### RESULT

The research was carried out at the Provincial District Inspectorate Office located at Ade Irma Nasution, Prince River, East Ilir District, Palembang City. In this study, the researchers distributed a questionnaire to 41 auditors or inspectors at the District Inspectorate of South Sumatra Province. Of the 41 questionnaires distributed, all were returned and used as samples in this study.

**Table 3. Data collection**

Description	Number	Percentage
A questionnaire that is barred or given	41	100%
Returning questionnaire	41	100%
The questionnaires used in the research	41	100%
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A questionnaire that is barred or given	41	100%
Returning questionnaire	41	100%
The questionnaires used in the research	41	100%

**Source:** Author, 2023.

Data in this study was obtained by researchers through the dissemination of questionnaires that contain profiles or general overview of respondents covering age, gender, position, last education and length of work.

Based on the above table of 41 respondents from the data processing data shows that for the age level the most respondents are <36 years – 45 years with the total number of respondents 26 or 63%. Next for respondents of the male type 16 respondents or 39% and respondents with the female type 25 respondants or 61%. For the most positions are young auditors 27 respondents, or 66%. Next, for the educational level of the respondents the most is the second layer (S2) with the number of responders 23 or 44%. Last for the longest level of work the most answerants are 10-12 years with a total of 31 responders or 75%. The research is based on the transformation of the research data in the form of tabulations, so it is interpretable and easy to understand. The questionnaire has been distributed to 41 respondents from the Inspectorate who are conducting the research.

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

The questionnaire consists of 4 (four) variables with 3 (three) X variables that are internal control, good governance and whistleblowing system and 1 (one) Y variable that is fraud prevention. The statement details on the internal control variable (X1) consist of 16 (sixteen) statements divided into 5 indicators that are: control environment, risk assessment, control activity, information and communications and surveillance activities each indicator has 3 (three) declarations except that the control environment has 4 (four) declaration. Whereas the variable good governancing (X2) there are 5 (five) indicators which are: transparency, accountability, responsibility, independence, obligation. The variable whistleblowing system (X3) consists of 12 (twelve) statements divided over 4 (four) indicators namely: anonymity, independence, access and follow-up with each indicator containing 3 (three) declarations. The data given by the survey scores are organized into tabulations that facilitate the researchers in various analyses on this study, by providing the information they need. The answer scores of respondents are then summed up on the basis of variables for each respondent. A summary of data on respondents' responses on internal control (X1), good governance (X2), whistleblowing system (X3) and fraud prevention (Y) can be seen in the attached table. Based on the respondent's responses from the tabulation results that can be viewed in the appendix, due to the requirement for regression analysis, the data must be intervals. Then the ordinal data is converted to interval data using the program (software) Microsoft Successive Interval (MSI).

### Descriptive Statistical Analysis

#### Research Variable Descriptive Analysis

The results of the statistical tests will be presented on this part of the variable in this study there are 3 (three) variables X (Free) namely internal control (X1), good governance (X2) and Whistleblowing System (X3) and 1 (one) variable Y (Binded), namely fraud prevention.

#### Internal control (X1)

The internal control variable (X1 ) consists of 16 (sixteen) statements divided over 5 (five) control environment indicators 4 (four) declarations, risk assessment indicators 3 (three) declaration, control activity indicator 3 (Three) statement, information and communications 3 ( Three) Statements, surveillance activity 3 (Third) statement. Control environment indicator can be seen in the following table 4 :

#### 1. Control environment

**Table 4. Recapitulate questionnaire answers Control Environment Indicators**

Description	X1.1		X1.2		X1.3		X1.4	
	∑	%	∑	%	∑	%	∑	%
Totally agreej	7	17,1%	6	14,6%	9	22,0%	8	19,5%
Agree	25	61,0%	29	70,7%	28	68,3%	27	65,9%
Neutral	9	22,0%	6	14,6%	4	9,8%	5	12,2%
I don't agree	0	0%	0	0%	0	0%	1	2,4%
Very disagreeable	0	0%	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%	41	100%

**Source:** Processed data,2023

Based on the above table, the first question with the control environment indicator, i.e. demonstrating commitment to ethical values and integrity, resulted in 61,0% or 25 respondents responding agree with the reason already demonstrated commitment towards ethic values, integrity. Based upon the table above, the second question with monitoring environment indicators that the leader performs supervisory functions and demonstrates independence in the development of the implementation of the internal control, resulting in 70,7% or 29 respondents answering agreeing on the reason that they have already performed the monitoring function and show independent development of internal control implementation.

Based on the above table, the fourth question with the indicator of the control environment is to show commitment in the recruitment process of employees to the development of competent employees in accordance with the goals and policies of the government and to the commitment to retain competent workers, resulting in 65.9% or 27 respondents agree with the reason already demonstrated commitments in the process of recruiting employees to develop competent staff according to the objectives and policy of the Government as well as showing commitment for retaining competent people.



## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

### 2. Risk assessment

**Table 5. Recapitulate questionnaire responses Risk assessment indicators**

Description	X1.5		X1.6		X1.7	
	Σ	%	Σ	%	Σ	%
Totally agree	5	12,2%	8	19,5%	11	26,8%
Agree	19	46,3%	20	48,8%	23	56,1%
Neutral	14	34,1%	13	31,7%	7	17,1%
I don't agree	3	7,3%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100	41	100

Source: Processed data, 2023

Based on the above table, the first question with the risk assessment indicator is to define clear organizational objectives so that the identification and risk evaluation of each objective can be done and able to identify the risk to the achievement of the objectives throughout the entity, resulting in 46.3% or 19 respondents agree with the reason already defined the organization's objectives clearly so that identifying and assessing the risks of the respective objectives can be carried out and capable of identifying risks to the attainment of the goals across the entire entity.

Based on the above table, the second question with the risk assessment indicator, namely risk analysis as a basis for determining how risk should be managed and considering the possibility of fraud in risk assessments, resulted in 48.8% or 20 respondents agreeing on the grounds that risk analysis is already the basis for defining how risks should be administered and taking into consideration the possible existence of frauds in risk evaluation.

Based on the above table, the third question with the risk assessment indicator, namely, identifying any change that may have a significant impact on internal control, resulted in 56.1% or 23 respondents agreeing on the grounds that they have identified any change which may have an important impact on the internal control.

### 3. Control Activity

**Table 6. Summary of questionnaire responses Indicator Control Activity**

Description	X1.8		X1.9		X1.10	
	Σ	%	Σ	%	Σ	%
Totally agree	7	17,1%	8	19,5%	14	34,1%
Agree	22	53,7%	28	68,3%	23	56,1%
Neutral	10	24,4%	5	12,2%	4	9,8%
I don't agree	2	4,9%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Control Activity indicator is to choose control activity that contributes to mitigation (in order to reduce) risk in achieving the objective, resulting in 53.7% or 22 respondents agree on the grounds that they have chosen control activities that contribute to mitigation (to reduce) risks in attaining the goal. According to the table above, the second question with control activity indicator that is to develop control activities in general over technology to support the achievement of the goal, yields 68.3% or 28 respondents agreed with the reason for developing control activities generally over technology in support of achieved objectives.

### 4. Information and communication

**Table 7. Summary of questionnaire answers Information and communication indicators**

Description	X1.11		X1.12		X1.13	
	Σ	%	Σ	%	Σ	%
Totally agree	11	26,8%	7	17,1%	16	39,0%

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

Agree	22	53,7%	28	68,3%	20	48,8%
Neutral	8	19,5%	6	14,6%	5	12,2%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Information and Communication indicator, obtaining relevant and quality information to support internal control, resulted in 53.7% or 22 respondents agreeing on the grounds that they already obtained relevant information and quality in support of internal control. According to the table above, the second question with information and communication indicator is communicating internally about internal control to support other components, resulting in 68.3% or 28 respondents responding agreeing with the reason that they have already communicated internally concerning internal controls to support others components.

Based on the above table, the third question with the Information and Communication indicator is to communicate relevant internal controls to external parties, resulting in 48.8% or 20 respondents agree on the grounds that they have already communicated relevant internal controllers to externals.

### 5. Monitoring Activity

Table 8. Summary of questionnaire responses Monitoring Activity Indicators

Description	X1.14		X1.15		X1.16	
	∑	%	∑	%	∑	%
Totally agree	10	24,4%	8	19,5%	11	26,8%
Agree	23	56,1%	23	56,1%	20	48,8%
Neutral	7	17,1%	10	24,4%	9	22,0%
I don't agree	1	2,4%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	1	2,4%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Surveillance Activity Indicator is to choose a continuous evaluation to ensure that internal control exists and works, resulting in 56.1% or 23 respondents agree on the grounds that they have already chosen continuous assessment to ensure the existence and operation of internal controls. Based upon the table above, the second question with a Survey Activity indicator, namely, evaluating the lack of internal controlling on the responsible party, resulted in 56.1%, or 23 replies agree with the reason that they had evaluated the deficiency in internal control on the accountable party.

Based on the above table, the third question with the Monitoring Activity indicator is to communicate a lack of internal control to the responsible party, resulting in 48.8% or 20 respondents agree on the grounds that they have already communicated a deficiency in internal control of the responsible parties.

### Good Governance (X2)

The Good Governance variable (X2) consists of 15 (fifteen) statements divided over 5 (five) indicators of transparency 3 (three) declarations, indicator of accountability 3 (Three) Statements, activity indicator Responsibility 3 (Third) Statement, independency 3 ( Three) Declarations, liability activity 3 (Four) statement. Indicators of transparency can be seen in table IV.8 below:

#### 1. Transparency

Table 9. Summary of Transparency Indicators questionnaire answers

Description	X2.1		X2.2		X2.3	
	∑	%	∑	%	∑	%
Totally agree	15	36,6%	11	26,8%	16	39,0%

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

Agree	20	48,8%	19	46,3%	21	51,2%
Neutral	5	12,2%	9	22,0%	3	7,3%
I don't agree	0	0%	2	4,9%	0	0%
Very disagreeable	1	2,4%	0	0%	1	2,4%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Transparency indicator, i.e. supervisors, managers and employees are open in the decision-making and supervision process and members are entitled to access relevant financial information on a periodic basis, resulting in 48.8% or 20 respondents agree on the grounds that the inspectorate is open in decision making and oversight and members have the right to access pertinent financial information periodically.

According to the table above, the second question with transparency indicators is that the procedures and policies are published in writing and are accessible to all interested parties and the auditor has access to information with confidentiality kept kept, yielding 46.3% or 19 respondents agreed with the reason that the Inspectorate has been in accordance with the procedure and policy published in written form and is available to all stakeholders and Auditors have access to the information with secrecy kept kept.

Based on the above table, the third question with the Transparency indicator, namely the submission of financial statements, and the performance of the business at the meeting of members and authorities, resulted in 51.2% or 21 respondents agreeing on the grounds that the inspectorate has submitted the financial report, and performance at meeting of the members and the authorities.

## 2. Accountability

Table 10. Recapitulate questionnaire answers Accountancy Indicators

Description	X2.4		X2.5		X2.6	
	Σ	%	Σ	%	Σ	%
Totally agree	8	19,5%	16	39,0%	13	31,7%
Agree	20	48,8%	23	56,1%	20	48,8%
Neutral	11	26,8%	2	4,9%	7	17,1%
I don't agree	1	2,4%	0	0%	1	2,4%
Very disagreeable	1	2,4%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the indicator of accountability, i.e. Supervisors, managers and employees have known and the task description of each unit has been set according to the vision, mission, and operational objectives of the institution, resulting in 48.8% or 20 respondents responding with the reason that the supervisor, manager and employees are aware and the description of the tasks of every unit have been set in accordance with the vision of the organization, its mission and its operational purposes.

Based on the above table, the second question with the indicator of accountability is that the decision-making process refers to the system and procedure built, resulting in 56.1% or 23 respondents agree on the grounds that already showed the decision making process referred to the systems and procedures built.

Based on the above table, the third question with the accountability indicator is Performance Responsibility to a member meeting and well evaluated as well as Any work outcome is well documented, resulting in 48.8% or 20 respondents responding agree on the grounds that has already demonstrated performance responsibility at a member meet and well assessed as well and Every work output is properly documented.

## 3. Responsibility

Table 11. Recapitulate responses to questionnaire Responsibility Indicators

Description	X2.7		X2.8		X2.9	
	Σ	%	Σ	%	Σ	%
Totally agree	7	17,1%	9	22,0%	14	34,1%

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

Agree	28	68,3%	19	46,3%	24	58,5%
Neutral	5	12,2%	13	31,7%	2	4,9%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	1	2,4%	0	0%	1	2,4%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the indicator of accountability, that is, adhering to the principle of caution, obedience to the rule of law, basic budget and government regulations, resulted in 68.3% or 28 respondents agree on the grounds that they have adhered to the principles of prudence, compliance with the regulation of the law, the basic budget, and the government regulation.

Based on the above table, the second question with the indicator of responsibility is the obligation carried out in accordance with the regulations in force and in time, resulting in 46.3% or 19 respondents agree with the reason that the obligations have been executed according to the regulation in place and on time.

Based on the above table, the third question with the indicator of responsibility is the implementation and social responsibility by increasing or applying care for the community and environmental sustainability, resulting in 58.5% or 24 respondents agree with the reason already implemented and social accountability by enhancing or applied care for society and the environment.

### 4. Independence

**Table 12. Recapitulate Questionnaire Indicator Independence Answers**

Description	X2.10		X2.11		X2.12	
	Σ	%	Σ	%	Σ	%
Totally agree	14	34,1%	11	26,8%	14	34,1%
Agree	24	58,5%	19	46,3%	19	46,3%
Neutral	2	4,9%	13	31,7%	7	17,1%
I don't agree	0	0%	11	26,8%	1	2,4%
Very disagreeable	1	2,4%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Indicator of Independence is that decisions of managers and managers irrespective of the interests of the parties that are detrimental to the institution, resulting in 58.5% or 24 respondents agree on the grounds that it is in accordance with the decision of the manager and manager independent of the benefit of the party that is detrementing the institution.

Based on the above table, the second question with the Indicator of Independence is that the decision-making process is carried out objectively in the interests of the institution, resulting in 46.3% or 19 respondents agree on the grounds that it has implemented the Decision-making Process that is conducted objectively in the benefit of the agency.

Based on the above table, the third question with the Indicator of Independence is that each auditor must have his or her professional responsibilities with the highest degree of integrity, resulting in 46.3% or 19 respondents agreeing on the grounds that every auditor already has his/her professional responsibility with the higher degree of Integrity.

### 5. Due diligence

**Table 13. Recapitulate questionnaire answers Validity Indicators**

Description	X2.13		X2.14		X2.15	
	Σ	%	Σ	%	Σ	%
Totally agree	14	34,1%	8	19,5%	16	39,0%
Agree	22	53,7%	22	53,7%	21	51,2%
Neutral	5	12,2%	11	26,8%	4	9,8%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

Based on the above table, the first question with the indicator of responsibility, i.e. fair treatment to all stakeholders in the provision of services and information, resulted in 53.7% or 22 respondents agree on the grounds that it has treated all stakeholder parties fairly in providing service and information.

Based on the above table, the second question with the indicator of responsibility is that the organization must provide equal opportunities in the recruitment of employees, career and performance of its duties without distinction of tribe, race and religion, resulting in 53.7% or 22 respondents agree on the grounds that they have given equal opportunity in the acceptance of employees and career and performing their duties regardless of tribes, races and religion.

Based on the above table, the third question with the indicator Activity of obligation i.e. development and employment relationship in employees carried out with consideration of rights and obligations fairly and reasonably, resulting in 51.2% or 21 respondents agreed with the reason already carried on development and the employment relationships in employees done with regard to rights and responsibilities fair and reasonable.

### Whistleblowing system (X3)

The variable Whistleblowing system (X3) consists of 12 (twelve) statements divided over 4 (five) indicators Anonymity 3 (three) declarations, indicators of independence 3 (Three) claims, access indicators 3 ( Three) statements, follow-up 3 (Tree) statement. Indicators of transparency can be seen in table IV.13 below:

#### 1. Anonymity

**Table 14. Recapitulate questionnaire answers Anonymity Indicator**

Description	X3.1		X3.2		X3.3	
	Σ	%	Σ	%	Σ	%
Totally agree	10	24,4%	10	24,4%	12	29,3%
Agree	26	63,4%	22	53,7%	20	48,8%
Neutral	3	7,3%	9	22,0%	8	19,5%
I don't agree	2	4,9%	0	0%	1	2,4%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with an indicator of anonymity is that I will report a violation if my identity is unknown, resulting in 63.4% or 26 respondents agreeing on the grounds that will report an infringement if I am not known.

Based on the above table, the second question with an anonymity indicator is I will use an anonymous name if reporting a fraud, resulting in 53.7% or 22 respondents agree on the grounds already using a pseudonym when reporting an infringement/fraud.

Based on the above table, the third question with the anonymity indicator is that I am not afraid to report violations that have occurred because there is a policy on whistleblowing protection in the system, resulting in 48,8% or 20 respondents agree on the grounds that there is already a policy about whistler protection within the system.

#### 2. Independence

**Table 15. Recapitulate Questionnaire Independency Indicators Answers**

Description	X3.4		X3.5		X3.6	
	Σ	%	Σ	%	Σ	%
Totally agree	16	39,0%	10	24,4%	16	39,0%
Agree	20	48,8%	18	43,9%	23	56,1%
Neutral	5	12,2%	10	24,4%	2	4,9%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the Independence indicator is that the management and managers are involved in the implementation of the whistleblowing system, resulting in 48.8% or 20 respondents agree with the reasoning of the direction and the managers have been involved in implementing the whispering system.

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Based on the above table, the second question with the Indicator of Independence is that the whistleblowing system is administered by an independent special officer, resulting in 43.9% or 18 respondents agreeing on the grounds that it has been managed by an Independent Special Officer.

Based on the above table, the third question with the Indicator of Independence is whether I am neutral or not in favour of one, have own power, independent, not controlled by the other party, resulting in 56.1% or 23 respondents agree on the grounds of neutrality or disapproval of the one, having own authority, free, uncontrolled by another party.

### 3. Access

**Table 16. Recapitulate Questionnaire Answers Access Indicators**

Description	X3.7		X3.8		X3.9	
	Σ	%	Σ	%	Σ	%
Totally agree	12	29,3%	16	39,0%	15	36,6%
Agree	20	48,8%	19	46,3%	20	48,8%
Neutral	9	22,0%	6	14,6%	6	14,6%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

**Source:** Processed data, 2023

Based on the above table, the first question with the access indicator is that I will try to report violations through the internal channels of the instance, resulting in 48.8% or 20 respondents agree with the reason for reporting violations via the internal channel of the authority.

Based on the above table, the second question with the access indicator is that if internal whistleblowing is not possible, I will make every effort to carry out the action through the external channels of the authority, resulting in 46.3% or 19 respondents agree with the reason for carrying out the act through the outside channel of the agency.

Based on the above table, the third question with the access indicator is that I dare to report violations because there is immunity to administrative sanctions, and it is easier to report because there are special channels for reporting violations, resulting in 48,8% or 20 respondents agree with the reason for boldly reporting the violations due to immunity from administrative penalties, and more easily to report the breaches due to the availability of a special channel for violations.

### 4. Proceed

**Table 17. Recapitulate Questionnaire Answers Indicator Advanced Action**

Description	X3.10		X3.11		X3.12	
	Σ	%	Σ	%	Σ	%
Totally agree	14	34,1%	10	24,4%	16	39,0%
Agree	22	53,7%	23	56,1%	20	48,8%
Neutral	5	12,2%	8	19,5%	5	12,2%
I don't agree	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%

**Source:** Processed data, 2023

Based on the above table, the first question with the follow-up indicator is to report when there is a possibility of fraud and receive information on the progress of the handling of the infringement reports that I, resulting in 53.7% or 22 respondents agree with the reason the inspectorate has already when there was a probability of the fraud occurrence and received information on progress of handling the violation reports I.

Based on the above table, the second question with the Indicator of Further Follow-up is that the violations I should be investigated further, resulting in 56.1% or 23 respondents agreeing with the reason for the violation that further investigations must be undertaken.



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Based on the above table, the third question with the follow-up indicator is that evaluations and improvements should be continuously carried out by the Organization in order to improve the effectiveness of the Whistleblowing System program, resulting in 48.8% or 20 respondents agree on the grounds that the Inspectorate has shown the evaluation and improvement being continually carried on by the Organisation to increase the efficiency of the whistle blowing system program.

### (Y) fraud prevention

The fraud prevention variable (Y) consists of eight (eight) statements divided over two (two) indicators creating and inducing a culture of honesty and ethics four (four) declarations, indicators assessing and reducing the risk of four (4) statements.

#### 1. Create and maintain a culture of honesty and ethics

**Table 18. Recapitulation of questionnaire responses Indicators Creating and inducing a culture of honesty and ethics**

Description	Y.1		Y.2		Y.3		Y.4	
	Σ	%	Σ	%	Σ	%	Σ	%
Totally agree	14	34,1%	10	24,4%	16	39,0%	16	39,0%
Agree	22	53,7%	23	56,1%	20	48,8%	20	48,8%
Neutral	5	12,2%	8	19,5%	5	12,2%	5	12,2%
I don't agree	0	0%	0	0%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%	41	100%

Source: Processed data, 2023

Based on the above table, the first question with the indicator Create and maintain a culture of honesty and ethics is that the Inspectorate has implemented an anti-fraud control programme based on values adhered to by the government and formed a team to a goal jointly defined by a group of people in the organization, resulting in 53.7% or 22 respondents agreeing on the grounds that the inspectorate is already implementing a programme of anti- fraud control on the basis of values held by the Government as well as forming a team for achieving a goal defined jointly by a team of people within the organization.

Based on the above table, the second question with the indicator Creating and inducing a culture of honesty and ethics is that the Inspectorate performs background checks of employees before or promoted to occupy a position and performs rigorous and effective selection in the employee's recruitment process, resulting in 56.1% or 23 respondents agree with the reason why the inspectorate does a background check of employees prior to or promotion to a post and carries out strict and efficient selection on the employment process.

Based on the above table, the first question with the indicator of the control environment is to train regularly all employees on the values of the organization and conduct the alert training against fraud in accordance with the employee's work responsibilities, resulting in 48.8% or 20 respondents agree on the grounds that the Inspectorate has already conducted regular training to all employees about the organizational values and conducted alert training for fraud according to employee work responsibility. According to the table above, the second question with indicator Create and maintain a culture of honesty and ethics is that the inspectorate acknowledges the existence of employee performance that matches employee goals and establishes compensation programmes to scratch employee spirit so that employees can reduce the likelihood of fraud.

#### 2. Assess and mitigate risk

**Table 19. Recapitulate questionnaire responses Indicators Assess and reduce risk**

Description	Y.5		Y.6		Y.7		Y.8	
	Σ	%	Σ	%	Σ	%	Σ	%
Totally agree	14	34,1%	9	22,0%	8	19,5%	6	14,6%
Agree	22	53,7%	28	68,3%	24	58,5%	23	56,1%
Neutral	5	12,2%	3	7,3%	9	22,0%	6	14,6%
I don't agree	0	0%	1	2,4%	0	0%	0	0%
Very disagreeable	0	0%	0	0%	0	0%	0	0%
Number	41	100%	41	100%	41	100%	41	100%

Source: Processed data, 2023

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Based on the above table, the first question with the Risk Assessment and Reduction indicator, i.e. whether there is an adequate internal control system for fraud prevention, resulted in 53.7% or 22 respondents agreeing on the grounds that the inspectorate already has adequate system of internal control to prevent fraud.

Based on the above table, the second question with the indicator Assessment and risk reduction is that there is a dedicated team formed for fraud prevention and there is rapid follow-up on fraud findings, resulting in 68.3% or 28 respondents responding agree on the grounds that the inspectorate has already formed a special team for the prevention of fraud and there are quick follow-ups on frauds findings.

Based on the above table, the third question with the indicator Assess and mitigate risk, i.e. the application of sanctions to minimize deviations occurring in the organization, resulted in 58.5% or 24 respondents responding in agreement on the grounds that the inspectorate has already implemented sanctions for minimizing the deviation occurring within the organization.

Based on the above table, the fourth question with the indicator Assess and reduce risk is that the members of the organization at the Inspectorate cooperate well for the message of welfare and are able to assert to all employees to perform their duties as best as possible to train good morals in the soul of employees, resulting in 56.1% or 23 respondents agree on the grounds that the inspectorate has cooperated well for a message of well-being and is able to affirm to the entire employees to do the job as well as possible in order to train a good morality in the spirit of employees.

### Variable Descriptive Statistical Analysis

Descriptive statistical analysis is an overview of a data viewed from the mean, minimum, maximum, standard deviation and variance of each research variable. The independent variables in the study are internal control (X1), good governance (X2) and whistleblowing system (X3) and the dependent variable in this study is fraud prevention (Y). The frequency of the variables of internal control, good governing and whisblows against fraud prophylaxis processed using SPSS 25 can be seen in table IV.19 below:

**Table 20. Variable Descriptive Statistical Test Results**

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Total X1	41	57,50	91,37	69,6547	7,87193	61,967
Total X2	41	42,28	78,69	61,0683	9,17814	84,238
Total X3	41	35,82	67,37	53,9983	7,62769	58,182
Total Y	41	25,22	45,62	35,8273	4,78726	22,918
Valid N (listwise)	41					

Source: Processed data, 2023

The results of the descriptive analysis of the variable above show an overview of the data viewed from the mean, minimum, maximum and deviation standards of each of the research variables obtained that the internal control variable (X1) with a minimum value of 57,50, maximum value of 91,37, average value of 69,6547 with standard deviation of 7,87193. Good Governance variables (X2) with a minimal value of 42,28, maximum value, 78,69, mean value of 61.0683 with standard deviation of 9,17814. The Whistleblowing System variabel (X3) with minimum value 35,82, maximum value 67,37, mean value 53,9983 with standard departure of 7,62769.

### Data Testing

Valid and realistic data testing is a prerequisite for testing the research hypothesis in order to be valid and to prove its truth. Validity and rehabilitation tests have a strong influence on the results of a study.

#### a. Validity Test

The validity test is intended to test to what extent the result of a measurement that has been compiled is valid or not.  $r_{table}$  Value for the sample representing the population in this study was as much as 41 respondents with a significance rate of 5% and  $n = 41 - 2 = 39$  is 0.3081. So when  $r_{hitung} < r_{table}$  then the statement is invalid and also vice versa if  $r_{hitung} > r_{table}$  then the declaration is valid.

#### 1) Internal control X<sub>1</sub>

The validity test results of the internal control statements are as follows:

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**Table 21. Results of Internal Control Variable Validity Test**

Statement Details	$r_{hitung}$	$r_{table}$	Description
1	0,612	0,3081	Valid
2	0, 588	0,3081	Valid
3	0,527	0,3081	Valid
4	0,692	0,3081	Valid
5	0,606	0,3081	Valid
6	0,591	0,3081	Valid
7	0,625	0,3081	Valid
8	0,536	0,3081	Valid
9	0,588	0,3081	Valid
10	0,496	0,3081	Valid
11	0,472	0,3081	Valid
12	0,604	0,3081	Valid
13	0,461	0,3081	Valid
14	0,486	0,3081	Valid
15	0,519	0,3081	Valid
16	0,385	0,3081	Valid

**Source:** Processed Primary Data, 2023

Based on the above table on the validity test shows that the correlation value ( $r_{hitung}$ ) for each statement on the internal control variable (X1) is greater than the  $r_{table}$  where the size of the standard is 0.3081 (significant level of 5%).

### 2) Good Governance X<sub>2</sub>

The validity test results of the Good Governance Statements are as follows:

**Table 22. Good Governance Variable Validity Test Results**

Statement Details	$r_{hitung}$	$r_{tabel}$	Description
1	0,393	0,3081	Valid
2	0,751	0,3081	Valid
3	0,736	0,3081	Valid
4	0,769	0,3081	Valid
5	0,589	0,3081	Valid
6	0,672	0,3081	Valid
7	0,799	0,3081	Valid
8	0,685	0,3081	Valid
9	0,733	0,3081	Valid
10	0,642	0,3081	Valid
11	0,801	0,3081	Valid
12	0,549	0,3081	Valid
13	0,710	0,3081	Valid
14	0,679	0,3081	Valid
15	0,644	0,3081	Valid

**Source:** Processed Primary Data, 2023

Based on the above table, the validity test shows that the correlation value ( $r_{hitung}$ ) for each statement on the Good Governance variable (X2) is greater than the  $r_{table}$  where the size is standard 0.3081 (significant level 5%).

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### 3. Whistleblowing System X<sub>3</sub>

The validity test results of the Whistleblowing System statements are as follows:

**Table 23. Whistleblowing System Variable Validity Test Results**

Statement Details	r <sub>hitung</sub>	r <sub>tabel</sub>	Description
1	0,730	0,3081	Valid
2	0,628	0,3081	Valid
3	0,712	0,3081	Valid
4	0,639	0,3081	Valid
5	0,661	0,3081	Valid
6	0,758	0,3081	Valid
7	0,767	0,3081	Valid
8	0,722	0,3081	Valid
9	0,632	0,3081	Valid
10	0,794	0,3081	Valid
11	0,710	0,3081	Valid
12	0,733	0,3081	Valid

Source: Processed Primary Data, 2023

Based on the above table, the validity test shows that the correlation value ( $r_{hitung}$ ) for each statement on the Whistleblowing System variable (X<sub>3</sub>) is greater than the  $r_{tabel}$  where the size is standard 0.3081 (significant level of 5%). It can then be concluded that the statement on that variable is declared valid and can be compared with the  $r_{Table}$  in which the size of the standard is 0.3081, used as a study.

### 4. Y Fraud Prevention

The validity test results of fraud prevention statements are as follows:

**Table 24. Fraud Prevention Variable Validity Test Results**

Statement Details	r <sub>hitung</sub>	r <sub>tabel</sub>	Description
1	0,732	0,3081	Valid
2	0,665	0,3081	Valid
3	0,826	0,3081	Valid
4	0,587	0,3081	Valid
5	0,717	0,3081	Valid
6	0,700	0,3081	Valid
7	0,777	0,3081	Valid
8	0,400	0,3081	Valid

Source: Data Processing Results, 2023

Based on the above table on the validity test shows that the correlation value ( $r_{hitung}$ ) for each statement on the Fraud Prevention variable (Y) is greater compared to the  $r_{table}$  where the size of the standard is 0.3081 (significant side of 5%). It can then be concluded that the statement of the fraud prevention variable is declared valid and can be compared with the  $r_{Table}$  where a large table with the standard 0,3081 is used as a study.

#### b. Reliability Test

A reliability test is performed on valid statements. Generally speaking, the instrument is said to be Cronbach's Alpha reliable if it has a Cronbachs Alpha coefficient  $< 0.6$  then the research data does not have high reliability to be tested in the study. The following are reliability tests for internal control variables (X<sub>1</sub>), good governance (X<sub>2</sub>), whistleblowing system (X<sub>3</sub>) and fraud prevention (Y):

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**Table 25. Reliability Test Results of Research Instruments**

Variable	Cronbach's Alpha	Criteria	Description
1	0,845	0,6	Reliabel
2	0,916	0,6	Reliabel
3	0,909	0,6	Reliabel
4	0,843	0,6	Reliabel

Source: Data Processing Results, 2023

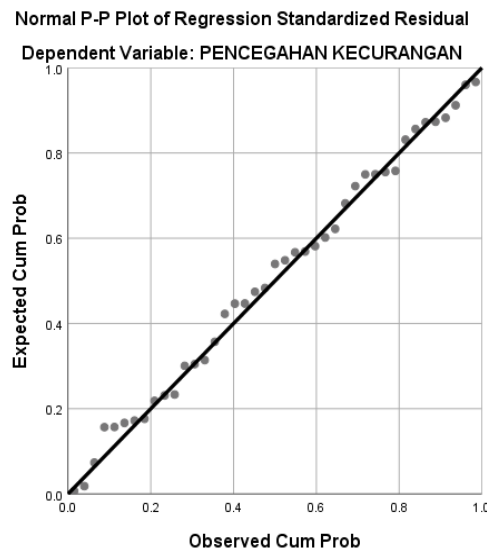
Based on the above table, the results of reliability data testing for internal control variables (X1), good governance (X2), Whistleblowing system (X3) and fraud prevention (Y) are stated as having cronbach's Alpha > 0.6.

### Classical Assumption Test

The classic assumption test used in this study is as follows:

#### a. Normality test

Normality test used to measure whether the data is distributed normally or not so that it can be used in statistics. The normality test results use the P-P Plot graph of the SPSS program version 25 and can be seen in the following image:



**Figure 2. Normality Test Results P-P Plot Graphics**

Based on the above image it can be concluded that the P-P Plot normality chart sees points spreading around the line and following the diagonal line, then the residual value indicates a regression model worthy to be used because it meets the assumptions of normality. In addition to using the P - P Plot chart, the normality test is supported by static-non parametric kolmogrov-smirnov analysis. (K-S).

**Table 26. Hasil Uji Normalitas Kolmogrov-Smirnov**

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		41
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	1.56749874
Most Extreme Differences	Absolute	.074
	Positive	.044
	Negative	-.074
Test Statistic		.074

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Asymp. Sig. (2-tailed)	,200 <sup>c,d</sup>
a. Test distribution is Normal.	
b. Calculated from data.	
c. Lilliefors Significance Correction.	
d. This is a lower bound of the true significance.	

Source: Processed Primary Data, 2023

The above table shows that the significance value is greater than 0.05 or  $0.200 > 0.05$ . Then it can be concluded that the residual value is normal.

### b. Multicollinearity test

The multicollinearity test is used to test whether a correlation between free variables is found in a regression model. Multicollinearity does not occur when the tolerance value limit is greater than 0.1 and the VIF value is less than 10. Here's the multicollinearity test of this study assisted by SPSS 25:

Table 27. Multicollinearity test results

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,557	2,549		1,395	0,171		
	Sistem Pengendalian Internal	0,011	0,043	0,018	0,252	0,802	0,569	1,757
	Good Governance	0,264	0,073	0,505	3,597	0,001	0,147	6,814
	Whistleblowing System	0,286	0,078	0,455	3,655	0,001	0,187	5,351

a. Dependent Variable: Fraud Prevention

Source: Processed Primary Data, 2023

Based on the above table shows that all free variables have tolerance values  $> 0.1$  and VIF values  $< 10$  thus it can be concluded that there is no question of free variable multicollinearity in this study.

### c. Heteroscedasticity test

The Heteroscedasticity test aims to identify a condition in which variance and interference error are non-constant for all free variables. This tester uses the Scatter Plot and the Glacier Test with the help of SPSS 25, here's the results of the heteroscedasticity test:

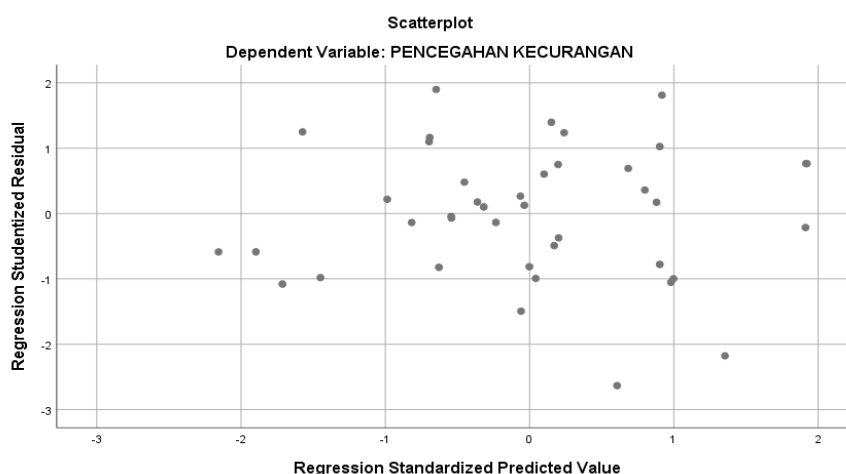


Figure 3. Heteroscedasticity Test Results Scatter Plot



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Based on the illustration above shows that the prediction value of the variable depends on the residual value is obtained as a result of the absence of clear patterns with points spreading above and below the number 0 on the y axis So there is no heterocedesis.

**Table 28. Hasil Uji Heterokedastisitas Metode Uji Glejser**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1,252	0,764		-1,638	0,110		
	Pengendalian Internal (X1)	0,018	0,031	0,151	0,576	0,568	0,258	3,874
	Good Governance (X2)	0,013	0,029	0,111	0,436	0,665	0,273	3,664
	Whistleblowing System (X3)	0,051	0,033	0,360	1,542	0,132	0,326	3,070

a. Dependent Variable: ABS\_RES

Source: Processed Primary Data, 2023

Based on the above table shows that the significance value of each variable is greater than 0.05 (sig> 0.05). So it can be concluded that there is no heterosexuality in this study.

### Hypothesis testing

The study aims to examine the impact of internal controls, good governance and whistleblowing systems on fraud prevention using SPSS 25.

#### a. Double Linear Regression Test

Before testing the hypothesis of the significance of the relationship between a free variable and a bound variable, we first need to know whether a model has a linear relationship. Here's the regression test using SPSS 25 as follows:

**Table 29. Hasil Uji Regresi Linier Berganda**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.557	2.549		1.395	.171
	Sistem Pengendalian Internal	.011	.043	.018	.252	.802
	Good Governance	.264	.073	.505	3.597	.001
	Whistleblowing System	.286	.078	.455	3.655	.001

a. Dependent Variable: Fraud Prevention

Source: Processed Primary Data, 2023

Based on the above table, the results of the double regression test performed in the examination of internal control variables (X1), good governance (X2), whistleblowing system (X3), and fraud prevention (Y), can be described as the following regression equations:

COMMUNITY:

$$Y = \alpha + \beta X + \beta X + \beta X + e$$

$$Y = 3.557 + 0,011X_1 + 0,264X_2 + 0,286X_3 + e$$

- 1) Based on the equation that has been made known, the constant value of 3.557 means that if the whole independent variable is considered constant internal control (X1), good governance (X2), whistleblowing system (X3) then the

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dependent variable value is fraud prevention of 3.5572.

- 2) The internal control regression coefficient (X1) has 0.011 states that every increase in internal control of 1 (units) then this value will increase the increase in fraud prevent by 0.011.
- 3) The good Governance regression factor (X2) has 0.264 stated that every improvement in good governing by 1 (unit) this value would increase the improvement of fraud protection by 0.264.

### b. Determination Coefficient Test (R<sup>2</sup>)

The determination coefficient given by R<sup>2</sup> is an important measure in regression. The purpose of this analysis is to calculate the magnitude of the influence of independent variables and dependent variables. The R<sup>2</sup> value shows how much of the total non-free variation can be explained by the explanatory variable. The determination coefficient test is assisted by SPSS 25 as follows:

**Table 30. Koefisien Determinasi**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	,945 <sup>a</sup>	,893	,884	1,62981
a. Predictors: (Constant), Whistleblowing System (X3), Good Governance (X2), Internal control (X1)				
b. Dependent Variable: Fraud Prevention (Y)				

**Source:** Processed Primary Data, 2023

Based on the above table shows that the determination coefficient value is 0.884. This value gives the internal control variable, good governance, that the whistleblowing system against fraud prevention is affected by 88.4% while the remaining 11.6% is influenced by other variables outside the results of this study.

### c. Testing the hypothesis simultaneously (Uji F)

The F test is performed to determine whether the influence of internal control variables, good governance, that whistleblowing system on fraud prevention is combined or simultaneous. The results of the hypothesis test on the F test are as follows:

**Table 31. Test Results Together**

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	819,499	3	273,166	102,838	,000 <sup>b</sup>
	Residual	98,282	37	2,656		
	Total	917,781	40			
a. Dependent Variable: Fraud Prevention (Y)						
b. Predictors: (Constant), Whistleblowing System (X3), Good Governance (X2), Internal control (X1)						

**Source:** Processed Primary Data, 2023

Based on the above table it is indicated that the significant  $F_{hitung}$  is 102,838 whereas the  $F_{table}$  for the actual degree ( $\alpha$ ) is 5% with the free degree (db)  $n-k-1$ . So the real degree of the  $f_{table}$  is:  $41-3-1 = 37$  so that the  $F_{table}$  is processed as 2.86. Then the value of  $F_{hitung} > F_{table}$  is  $102.838 > 2.86$  with a significant value greater than the defined significant rate of  $0,000 < 0.05$ .

Based on the simultaneous (F) hypothesis that the sig value  $< 0.05$  and the  $F_{count} > F_{table}$  value are then rejected  $H_{01}$  and  $H_{a1}$  accepted, this describes that there is a strong significance occurring in the influence of the free variable on the bound variable. So the conclusion of internal controls (X1), good governance (X2), that whistleblowing systems (X3) simultaneously influence the prevention of fraud (Y).

### d. Partial hypothesis testing (Uji T)

The T test aims to test the individual partial regression coefficient used to determine whether the independent dependent

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variable (X) individually affects the variable(Y).

The result of the T test is as follows:

**Table 32 T-Test Results**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,557	2.549		1,395	,171
	Internal control (X1)	,011	,043	,018	,252	,802
	Good Governance (X2)	,264	,073	,505	3,597	,001
	Whistleblowing System (X3)	,286	,078	,455	3,655	,001

a. Dependent Variable: Fraud Prevention (Y)

Source: Processed Primary Data, 2023.

The above table shows that the internal control variable has a  $t_{count}$  with a value of 0.252 with a significant rate of 0.802. The good governance variable had a  $t_{count}$  with the value of 3,597 with a significant rate of 0,001 and the whistleblowing system variable have a thingat with a rate of 3.655 with a signifying rate of 0.01. The value of the table with the degree of freedom (df)  $n-k-1$  or  $41-3-1 = 37$  with a significant rate of 5% of the result processed  $T_{table}$  is 2,026. Based on the data, it can be seen that:

- 1) The impact of Internal Control on Fraud Prevention. The variable Internal control (X1) is seen that the thitung table is  $0,252 < 2,026$  with a defined significant value of  $0,802 > 0,05$ . Then the  $H_{a2a}$  hypothesis was accepted and  $H_{02a}$  rejected. It can then be concluded that there is no influence between the internal control variable (X1) on fraud prevention. (Y).
- 2) The effect of good governance on the prevention of fraud. The variable good Governance (X2) shows that the thitung table is  $3,597 > 2,026$  with a significant value smaller than the defined significant rate is  $0,001 < 0,05$ . Then the hypothesis  $H_{02b}$  is rejected  $H_{a2b}$  is accepted. Then it can be concluded that there is an influence between the variable Good Governance(X2) on the fraud prevention variable (Y).
- 3) The impact of whistleblowing systems on fraud prevention. The variable whistleblowing system (X3) shows that the  $t_{count}$   $t_{table}$  is  $3,655 > 2,026$  with a significant value smaller than the defined significant rate is  $0,001 < 0,05$ . Then the hypothesis  $H_{02c}$  rejected  $H_{a2c}$  accepted. It can then be concluded that there is an influence between the whistleblowing system variable (X3) on the fraud prevention variable. (Y).

## DISCUSSION

### Results of Internal Control, Good Governance and Whistleblowing System Tests.

The results of this study show that the Internal Control, Good Governance and Whistleblowing system of 88.4% simultaneously affects the Fraud Prevention at the District Inspectorate of South Sumatra Province. Based on the results of the research conducted, the evaluation of internal control processes, good governance and whistleblowing system against fraud prevention, fraud actions can be prevented by identifying and measuring the risk of fraud that may occur, reducing the likelihood of such fraud, as well as implementing and monitoring the internal control of good Governance and WhistleBlowing system as an effort in preventing fraud at the South Sumatra Provincial Regional Inspectorate. This is evident from the respondents' responses to internal controls, good governance and whistleblowing systems contained in the questionnaire.

The results of this study are in line with previous studies by Rowa, Iza and Mei (2019), Fahmu and Arief (2022), Agus and Harti (2022), Aditya and Putra (2022), Nazzarrudin and Letje (2022), Monika (2019), Rizky (2020), Atmadja, dkk (2017), Dally (2019), Yuniarta, dkk (2019), Gede (2017) and Trisna (2017) which stated that internal controls, good governance and whistleblowing systems have a significant impact on fraud prevention.

### Results of the Internal Control Impact Test on Fraud Prevention

The results of this study can be concluded that internal controls have no significant influence on fraud prevention in the South Sumatra Provincial Regional Inspectorate. Based on the results of the research conducted, the Internal Control has not yet been able to evaluate the achievement of the objectives to be achieved, while the implementation of internal controls is the main reason to ensure that the process of achieving the goals can be carried out and reduce the various unwanted risks.

This research is not inconsistent with the theories of influential experts because the fact that internal controls cannot effectively prevent fraud because there are various limitations, including collusion and neglect by management. Fraud action could have

## Can Fraud Prevention Affect Internal Controls, Good Governance and Whistleblowing Systems?

been carried out outside controls that are not consistent with existing procedures, so that good internal controls do not return to being an obstacle to conducting fraud. The fraud triangle developed by Donald R. Cressey states that there are three factors in the occurrence of fraud, namely opportunity, pressure, and rationalization.

The second greatest chance in controlling fraud lies in the element of opportunity that is perceived opportunity is a situation where it opens up a great opportunity for management and employees to commit a fraud. The existence of an opportunity that can be realized in many ways, the most frequently emerging example is the weakness of internal control and lack of supervision in a company is one of the factors that supports such a happening. The weakness of the surveillance system, the word perceived also indicates that this opportunity also does not have to be really real.

The results of this study do not support or disagree with Nurul (2021:19) and Zimbelman (2014:447) theory, which states that in essence internal control is the unity of the organizational structure as well as supporting tools to monitor the activities related to the use of property belonging to the organization and to minimize the occurrence of errors, fraud and misconduct occurring in the organization so that the operational activities of the organization can run smoothly to support the achievement of the primary goals of the organisation.

The results of this study are in line with previous studies conducted by Mufidah and Amilia (2018) Ridho, Widya and Hafsa (2019), Aprila and Anita (2021), Dewi (2022), Atik, dkk (2022) which stated that internal controls have no significant influence on fraud prevention.

### The impact of good governance on fraud prevention

Based on the results of the research, it shows that good governance is carried out by management designed to eliminate or at least suppress the possibility of fraud. This is evident from the respondents' response to good governance, which consists of several indicators: transparency, accountability, Accountabilities, Independence and Responsibility. It can be concluded that good governance will reduce the risk of abuse or prevention of fraud. This means that the implementation of Good Governance is able to prevent fraud because any principle of good Governance always relates to the nature of openness, non-discrimination, clear accountability and the presence of control.

The results of this research are also supported by the theory (Irham, 2017:62) and Mardiasmo, (2018:22-23) that good governance is a form of decision by positioning a much more organized and structured maintenance of development management that is solidly responsible and in line with the principles of fraud prevention both politically and administratively.

### Results of the Whistleblowing System Impact Test on Fraud Prevention

Based on the results of the research, one of the most effective anti-fraud tools is the Whistleblowing System, which is capable of implementing and can help prevent or reduce the occurrence of fraud. This can be seen from the responses of the auditors to the Whistleblowing System, which consists of several indicators such as anonymity, independence, access and follow-up. It can be concluded that by implementing an effective whistle blowing system it is possible to minimize the occurrence of fraud due to the organization's commitment to the policy of protection of whistlespeople, clear reporting mechanisms as well as evaluations and improvements carried out to improve the effectiveness of the system so that will encourage the participation of the whistler to act more courageously in reporting the fraud he knows.

The results of this research are also supported by theories (Zimbelman, dkk 2014:453) and (Theodorus, 2018:61) that all public organizations have a Whistleblower system that facilitates officials and other parties to report suspicious activities. The Whistlowing System is a fraud disclosure and detection system, in order to facilitate internal and external parties reporting alleged fraud.

## 4. CONCLUSIONS

This study was conducted to test and find out how great the influence of internal control, good governance and whistleblowing system on the prevention of fraud in the Inspectorate of the Province of South Sumatra. Based on the results of the research carried out, it can be concluded as follows:

1. Internal controls, good Governance and Whistle Blowing system jointly have a significant impact on fraud prevention.
2. Internal controls in part have no significant effect on preventing fraud.
3. Good governance partially has a significant impact on fraud prevention.
4. The whistleblowing system has a partially significant impact on fraud prevention.

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## TPCK Investigation of Javanese Language Learning in Indonesian Elementary Schools: Application of Technology and a Pedagogical Approach



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**ABSTRACT:** This research was conducted to explore the application of pedagogical content technology (TPCK) knowledge and the appropriate strategies used. This research aims to investigate the incorporation of technology and Javanese teaching in academic settings further.

The quantitative research methodology covers Javanese educators and students in elementary schools throughout East Java. Data were collected through Google Forms and evaluated on the use of technology and educational techniques in acquiring Javanese. The research also highlights the beneficial influence of technology on Javanese language teaching.

This research has identified several effective methods to incorporate technology into Javanese language education, such as the development of tailor-made applications and software to facilitate language learning, the use of digital resources such as video, audio, and images related to Javanese culture, and the implementation of collaborative lessons through online platforms.

However, this study also reveals obstacles to implementing TPCK in Javanese language education, including limited technological devices, low-quality internet connections, insufficient guidance and support for teachers in TPCK development, and excess curriculum that hinders the potential of technology to improve language learning.

The use of TPCK in Javanese education has contributed significantly to this research. It is essential to design more effective teaching materials for Javanese language teachers as they integrate technology into their teaching. Furthermore, the results of this research can also be used to develop better systems and policies that support the use of technology in Javanese language education in the Java region and Javanese communities outside the region.

**KEYWORDS:** TPCK, Javanese language learning, elementary school.

### I. INTRODUCTION

Technology has become an essential part of human life. Its presence has brought convenience to various aspects of life, including education. Therefore, an educator needs to focus on developing a technology-based frame of mind (TPCK) (Pollara & Broussard, 2011). TPCK in learning is knowledge about integrating technology and pedagogics in content development in education. This integration between technology and science is expected to bring about changes in the world of education. TPCK consists of the following three components: (a) Technology emphasized in the 21st century, which requires teachers to be proficient in applying technology, (b) Pedagogic, and (c) Knowledge content. These three components cannot be separated from each other. However, technology is expected to enable collaboration with teachers in the academic realm to produce effective learning content for students. This is in line with the concept of education that uses technology in learning (Angeli & Valanides, 2009; Krauskopf & Zahn, 2015; Olphen, 2008).

Koehler and Mishra developed TPCK into seven elements. These elements are commonly referred to as seven domains of knowledge: *Pedagogical knowledge (PK)*, *Content knowledge (CK)*, *Technology knowledge (TK)*, *Pedagogical content knowledge (PCK)*, *Technological content knowledge (TCK)*, *Technological pedagogical knowledge (TPK)*, and *Technological pedagogical content knowledge (TPCK)* (Harris et al., 2014; Koehler & Mishra, 2009).

The explanation above provides direction in solving Javanese language learning problems in elementary schools in the implementation of an independent curriculum, including the low qualifications of Javanese language teachers in using information technology, the unapplied use of learning technology by learning demands, and the uneven distribution of network technology support facilities in elementary schools (Murni, 2018) (Dawha et al., 2016).

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The role of teachers in 21st-century learning is as follows: resource *linkers*, building student character, instilling an *entrepreneurial mindset* in students, teaching critical thinking, creating challenges for students, and making learning communities. Teachers must also have the character of *lifelong learners*, diligent throughout life. Teachers must continuously develop their understanding and knowledge, starting from reading, practicing skills, and discussions with other teachers from trusted experts. Teachers must always be open to new insights to be relevant (Subrata et al., 2022).

Teachers are also required to be creative, innovative, and reflective. Build teacher and student engagement to work together or collaboratively. Moreover, it must operate the latest technology to the maximum, especially internet technology. It can also implement blending learning, where learning is combined into one, namely, online, and offline (Hoon et al., 2016; Lahiri, 2016) (Khairurrozikin et al., 2020). Learning must also be *student-centered*, with the teacher being the facilitator. Students will engage in active learning to grow their initiative and creativity. With this model, communication will go both ways (Hartnell-Young, 2003) (Ahmad & Hamda, 2018; Hoon et al., 2016).

This research investigated the TPCK theoretical framework, which is a development of Pedagogical Content Knowledge (PCK). Pedagogical Content Knowledge (PCK) was first conceived by Shulman in 1986. According to Shulman (1986), a teacher must master pedagogical knowledge (PK) and content knowledge (CK). Combining PK and CK means a teacher must master the content/material and pedagogy to create learning (Krauskopf & Forssell, 2018; Olphen, 2014) (Shulman, 1987).

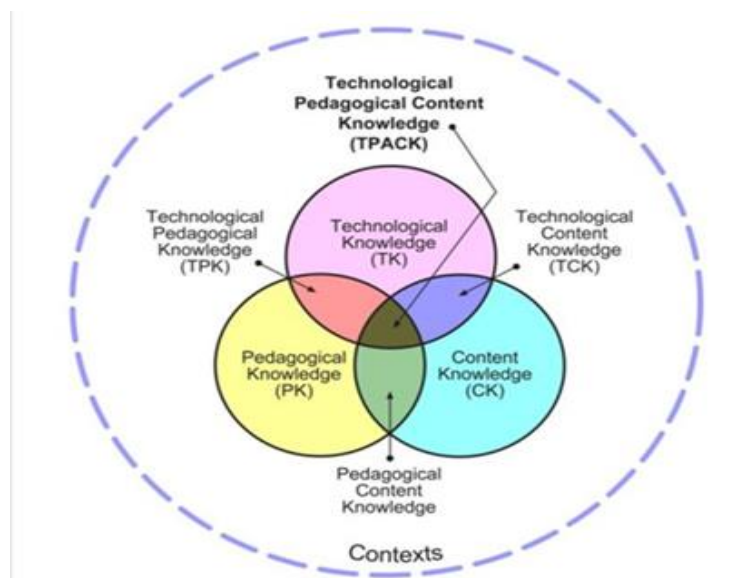


Figure 1. The TPCK framework and its knowledge components (Koehler & Mishra, 2009)

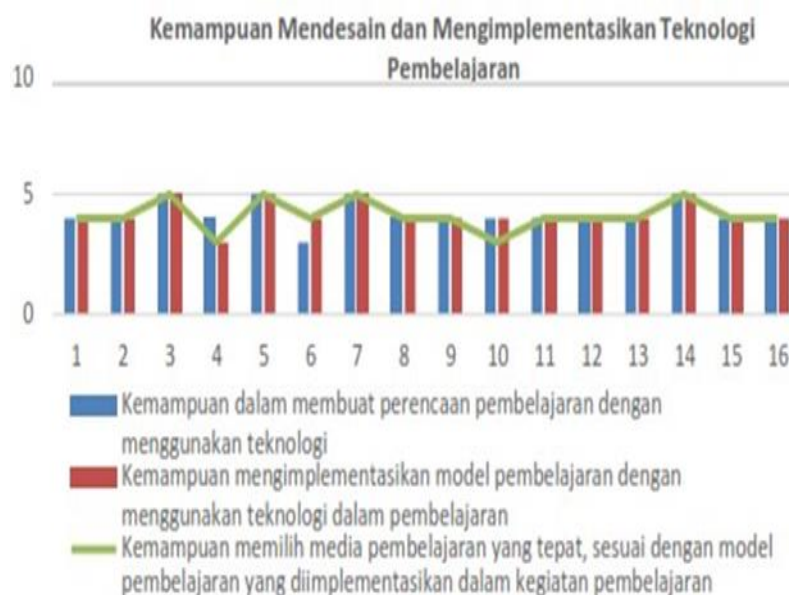


Figure 2. Ability to Design Learning Technology (Subrata, Zuhdi, Damayanti, et al., 2022)

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Elementary schools in East Java found that technology adoption is still not optimal. Learning media in the environment around students is still effectively used by most Javanese teachers. Students are invited to practice directly with dialogue or dramatization in class, for example, when receiving guests at home, serving dishes, and talking to guests using basic manners. If children in practice still use the wrong or mixed language, the teacher can correct it directly (Subrata, 2022a) (Subrata, 2022c) (Subrata, 2022b; Utami & Zustiyanoro, 2022).

Another finding is that there are still schools, although a small number, that have not used learning media technology. Teachers only use it when necessary, such as in “macapat” song material. Because teachers are not proficient in “nembang”, YouTube is a teaching medium (Hoon et al., 2016).

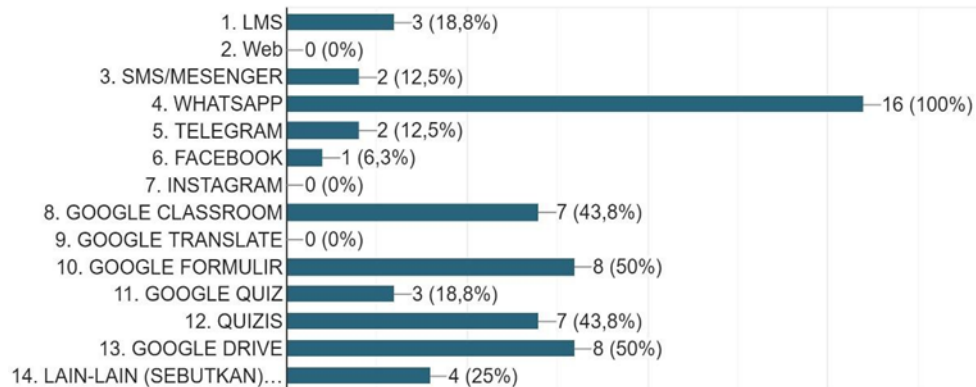


Figure 3. Use of a Digital Platform in Javanese Language Learning in Schools

This study aims to analyze and describe the application of the Technical Pedagogical Content Knowledge (TPCK) Framework in learning local content of the Javanese language at the elementary school level in East Java. This study's objectives are as follows: First, analyze the TPCK Dimension: Identifying technological knowledge, pedagogy, and content possessed by teachers in the context of Javanese language learning in elementary schools. Second, measuring TPCK integration in Javanese language learning includes technological knowledge, content knowledge, pedagogical knowledge, and TPCK (technological, pedagogical, content knowledge).

This research is expected to benefit various parties involved in education, including teachers and educators, schools and principals, education offices, students, and researchers. Furthermore, this research can be a reference for future research in the field of TPCK and its application in the context of learning local content in Javanese or other fields.

## II. METHOD

This study is based on the TPCK framework developed by Mishra and Koehler (2006). This study also used the TPCK-based scoring model that Abbit (2011) proposed. The TPCK framework was introduced in educational research to understand the teacher knowledge required to integrate technology effectively. The framework results from a comprehensive interaction of content, pedagogical, and technological expertise. This includes understanding how concepts are presented through technology. These pedagogical techniques can constructively apply technology to convey content in different ways depending on the learning needs of students, knowledge of what can make or break learning concepts and how technology can help address conceptual challenges, knowledge of previous understanding of content and epistemological assumptions, and knowledge of how technology can be used to build on existing knowledge to develop new epistemologies or reinforce old ones (P. et al., 2006) (Harris et al., 2014). It consists of seven domains: technical knowledge (TK), content knowledge (CK), pedagogic knowledge (PK), pedagogic content knowledge (PCK), technical content knowledge (TCK), pedagogic technical knowledge (TPK), and Technical Pedagogical Content Knowledge (TPCK) (Mouza et al., 2016) (M. Mishra et al., 2022).

This research was conducted in elementary schools (public and private) in the East Java region, consisting of 35 elementary schools—sample selection using the purposive sampling technique. A survey-based questionnaire was used. This research design was used to collect responses from respondents with survey instruments, including Technical Pedagogical Content Knowledge (TPCK in digital platforms used in learning local content of Javanese language in elementary schools).

This survey outlines the aims and objectives of the study, namely the implementation of Technical Pedagogical Content Knowledge, including a description of what is needed to learn local Javanese content in elementary schools. The information

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sheet also explains that survey participation is voluntary, and if participants do not agree to participate, they will remain anonymous. Those who decide to participate will remain anonymous.

## A. Research Subjects

The research subjects were elementary school teachers in East Java, which included 35 people.

## B. Data collection techniques

Data collection is carried out through surveys consisting of two parts. Part A collects information about the participant profiles. Part B gathers information on the use of technology (TPCK) in Javanese language learning. Part C explores the supporting elements of learning Javanese local content using digital platforms.

## C. Data analysis techniques

Data analysis techniques in this study, namely quantitative data analysis from survey results, include Technological Pedagogical Content Knowledge TPCK. Pedagogical Content Knowledge (PCK). Pedagogical Knowledge (PK), Content Knowledge (CK), and Combination of PK and CK. The analysis was performed with the help of SPSS software.

## III. RESULT

The results of the TPCK questionnaire data analysis of elementary school teachers in East Java were obtained through a closed questionnaire containing statements that teachers must answer regarding whether they agree with the questions (Likert scale). Questions have been adapted to TPCK elements (as limited by Suryawati et al., 2014; Tian et al., 2012; Chai et al., 2011; Schmidt et al., 2009). This category includes pedagogical knowledge (PP), content knowledge (CK), technology knowledge (TK), and technology pedagogical content knowledge (TPCK). All respondents had to answer 30 items in the TPCK questionnaire; of the 85 respondents who answered the questionnaire, 58.

Of the 58 primary school teachers—74.4% of whom taught in public schools and 29.3% in private schools—answered questions. The data are then collected and analyzed according to the data processing needs. Of the 58 educators, 17.2% recorded having more than three years of teaching experience, 15.5% had four to six years of teaching experience, 5.2% had seven to nine years of teaching, 8.6% ten to 12 years of teaching, 13.8% had 13–15 years of teaching, 6.9% had 16–18 years of teaching, 10.3% had 19–21 years of teaching, 8.6% had 22–25 years of teaching, and 15.5% had more than 25 years of teaching.

## A. Pedagogical Knowledge (PP)

Knowledge pedagogy (PP) includes understanding various teaching tactics and techniques, including lesson plan creation, classroom management, and learning assessment (Kohler et al., 2014; Schmidt & Mishra, 2009). The results of the analysis of questionnaire data on elements of pedagogical knowledge are presented in Table 1 by selecting Strongly Disagree (1), Disagree (2), Average (3), Agree (4), and Strongly Agree (5).

**Table 1. Results of the Pedagogical Knowledge (PP) questionnaire**

No	Item	SCORE	%
1	I have a good understanding of the purpose of learning Javanese	4.1	76
2	I recognize the common difficulties and misconceptions experienced by students while learning Javanese	4.2	82
3	I can choose and develop Javanese learning materials that suit the needs of students.	4.2	55
4	I can explain Javanese concepts clearly and efficiently to students	4.1	66
5	I know how to present Javanese learning materials in an exciting and relevant manner	4.1	62
6	I could identify students' progress in learning Javanese and provide appropriate feedback	4.1	60
7	I use different learning strategies to overcome students' learning difficulties in Javanese.	4.0	66
8	I can adapt the Javanese learning method to the student's learning style	4.0	65
9	I continuously develop my teaching methods and learn Javanese	4.1	76

To the first question, which asked whether teachers understood Javanese learning objectives well, 4.1% of teachers answered in the affirmative. This shows that teachers have good knowledge of Javanese learning outcomes. This is also related to other question items, including having a good understanding of Javanese learning objectives, recognizing common difficulties and misunderstandings experienced by students when learning Javanese, and the ability to choose and develop Javanese learning

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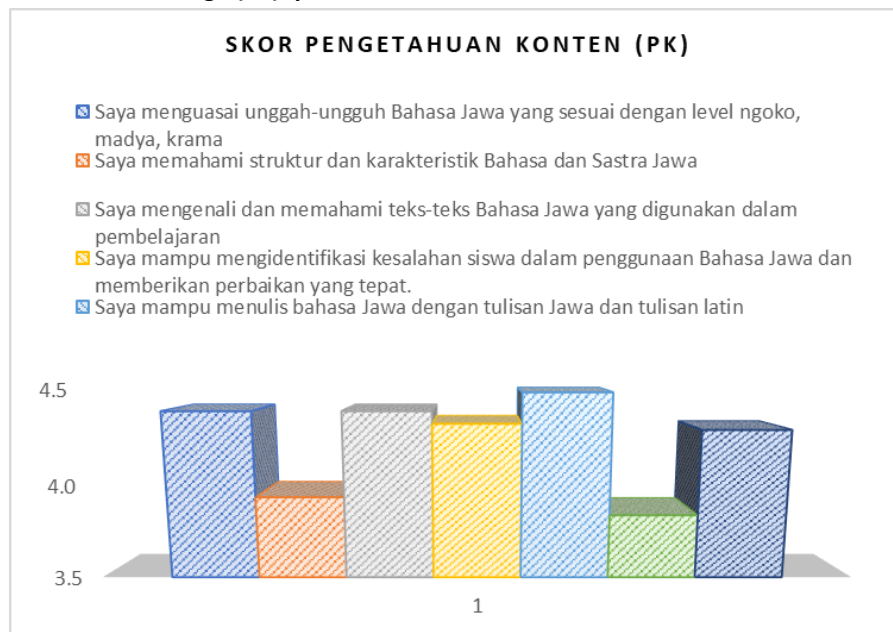
materials that suit student needs. Overall, as many as 76% of the respondents agreed. Furthermore, for the ability to explain Javanese concepts and how to present Javanese learning materials, a percentage of 82 was obtained using a score of 4.1. It is also about the ability to identify student progress in learning Javanese and provide appropriate feedback, strategies, and student learning difficulties in Javanese, as well as adjusting Javanese learning methods to student learning styles, also obtained a percentage of 65% with a score of 4.

Regarding continuous efforts to develop themselves in Javanese teaching and learning methods, 76% received a score of 4.1, which means that respondents agree with this statement. The results showed that teachers' pedagogical knowledge of Javanese learning in East Java was included in the excellent category. A teacher who does not thoroughly understand the material risks creating misunderstandings and falsifying facts (Mishra & Koehler, 2008).

### B. Content Knowledge (CK)

Content Knowledge (PK): Knowledge of specific content related to subject matter expertise that educators must possess (Kohler et al., 2014; Schmidt & Mishra, 2009), which in this study refers to Javanese language material or content. Understanding the subject means understanding various concepts, theories, terminology, and frameworks (Shulman, 1986). The results of questionnaire data analysis for aspects of content knowledge are presented in Table 2 by selecting Strongly Disagree (1), Disagree (2), Average (3), Agree(4), and Strongly Agree(5).

**Table 2. Results of the Content Knowledge (PK) questionnaire**



Overall, mastery of Javanese uploads by the level of ngoko, madya, krama, mastery of Javanese uploads by the level of ngoko, madya, krama, understanding of Javanese texts used in learning, the ability to write Javanese with Javanese writing and Latin writing obtained an average data value of >4, which means that respondents agree with the statement items about content knowledge. In contrast, for understanding the structure and characteristics of Javanese Language and Literature and knowledge of tembang macapat in Javanese language and literature, the number <4 is obtained, meaning respondents expressed doubt.

### C. Technology Knowledge (TK)

Technology Knowledge (TK) refers to an understanding of various digital technologies that can be used in teaching and learning and the ability to use them (Schmidt, 2009; Kohler et al., 2014; De Rossi & Trevisan, 2018). Responses to questions were submitted via Google web forms by selecting Strongly Disagree (1), Disagree (2), Average (3), Agree (4), and Strongly Agree (5). The answer results are as follows:

**Table 3. Results of the Technology Knowledge (PT) questionnaire**

No	Item	Score	%
1	I know various tools and technological applications that can be used in Javanese language learning.	2	20



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2	I know how to integrate technology tools and applications in Javanese language learning.	3.9	62
3	I can use technology to create interesting Javanese learning materials.	4	55
4	I have skills in using the necessary tools and technological applications in learning Javanese.	3	40
5	I can guide students in using technology as a Javanese learning tool.	3.8	78

Regarding knowledge about various tools and technological applications that can be used in learning Javanese, only 20% of respondents gave responses that fell into the intermediate category with a score of 3.6. Respondents who know and can integrate technology tools and applications in Javanese language learning, have skills in using technology tools and applications needed in Javanese language learning, and can guide students in using technology as a Javanese learning tool obtained the same category, showing a figure of 3.8 from 78% of respondents. Meanwhile, only 20% can use the technology applications needed to learn Javanese.

### D. TPCK

Pedagogical knowledge and technology content, or TPCK, is a term used to describe the ability to incorporate technology into a curriculum on a particular subject (Schmidt & Mishra, 2009; Kohler et al., 2014). Table 7 shows the results of questionnaire data analysis for pedagogical elements of technology and content knowledge by selecting Strongly Disagree (1), Disagree (2), Average, Agree (4), and Strongly Agree(5).

**Table 4. Results of the Technological, Pedagogical, and Content Knowledge (TPCK) questionnaire**

No	Aspects	Indicator	%
1	I know various tools and technological applications that can be used in Javanese learning	3.9	45
2	I know how to integrate technology tools and applications into Javanese learning.	3.9	66
3	I can use technology to create interesting Javanese learning materials	4	60
4	I have skills in using the necessary tools and technological applications to learn Javanese.	3.9	65
5	I can guide students in using technology as a Javanese learning tool	3.9	78

The ability to integrate content knowledge, pedagogical knowledge, and technological knowledge in Javanese language learning in the first part about various specialized tools and applications that can be used in Javanese language teaching 45% of respondents obtained a figure of 3.9. This means to agree strongly. The same result was obtained for the second question: using technology effectively to support Javanese language teaching. The percentage is higher at 66%. Respondents also agreed that 40% could choose and integrate appropriate technology tools and applications with Javanese learning materials. The following data on teaching Javanese using technology creatively obtained 3.9 from 65% of respondents. The ability to use technology to facilitate and guide students obtained 3.9 figures from 78% of the respondents. This means that respondents strongly agree with using TPCK in Javanese language learning. More data can be found in Table 4.

## IV. DISCUSSION

In today's digital era, technology in learning is becoming increasingly important. One approach that can be used is technology teaching content knowledge (TPCK), which integrates technology, pedagogy, and content knowledge. Applying TPCK can significantly improve students' learning experience in Javanese language learning. This discussion will explore technology and learning strategies when implementing TPCK in essential Javanese learning (Koehler, 2006) (P. Mishra & Koehler, 2006).

Using technology when learning Javanese can involve various tools and applications that support interactive and technology-based learning. The use of technology to understand Javanese includes applications, both web-based and android-based, or IOS. There are various applications specifically designed to learn Javanese. These apps often provide interactive content such as vocabulary, grammar, and pronunciation exercise that students can access independently. The Internet-based application offers various Javanese language resources, such as online dictionaries, folklore, traditional songs, and learning videos.



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Using images, audio, and video (interactive multimedia) in Javanese learning can enrich students' learning experience. Teachers can use interactive multimedia materials to teach vocabulary, grammar, and correct pronunciation.

In addition to technology, Javanese language learning requires the application of appropriate teaching strategies. Some instructional strategies that can be used to implement TPCK are collaborative learning, problem-based learning, authentic assessment, and TPCK integration in Javanese language learning. Integrating TPCK with Javanese learning involves a combination of technical, pedagogical, and content knowledge. Teachers need a strong understanding of relevant technology to facilitate Javanese language learning. Teachers must also develop learning strategies that meet the objectives of learning Javanese. Using TPCK, teachers can design comprehensive, interactive, and relevant learning experiences for students. The overall discussion is explained as follows:

### ***A. Perception of the Use of Technology in the Teaching and Learning Process***

The perception of the use of information technology in Javanese language learning contributes to answering this research question. Research findings show that, in general, respondents consider using technology in the learning process to be critical. Technologies, such as specialized language learning applications and digital resources related to Javanese culture, positively impact Javanese language learning. Collaborative lessons through online platforms have also proven effective. However, obstacles to implementing TPCK in Javanese education, such as limited technological devices and lack of guidance for teachers, were identified. Overall, this study contributes significantly to designing more effective teaching materials and policies for using technology in Javanese language learning.

Findings also point to previous research that teachers generally have a positive attitude toward technology integration, as they believe it improves teaching practices, makes learning interactive and engaging, and keeps learners motivated. However, several barriers hinder effective integration, including slow internet speeds, lack of infrastructure, and inadequate training and support. Teachers also face challenges such as lack of knowledge on how to use technology, lack of resources and equipment, and insufficient preparation of materials. It is recommended that clear and effective policies be implemented to allocate sufficient budgets and provide the necessary facilitation in educational institutions. In addition, attention should be paid to the career development of teachers to improve their technological competence. Teacher beliefs and pedagogical paradigms play an essential role in integrating technology, and aligning these beliefs with student-centered pedagogical approaches is necessary for the optimal use of technology (Akram et al., 2022; Wang, 2023) (FadenClick or tap here to enter text.Herdina et al., 2023) (Gorder & Gorder, 2008) (Opre, 2022).

### ***B. Application of TPCK in Javanese language teaching.***

Implementing TPCK in Javanese language teaching it positively impacts Javanese language education if applications related to Javanese culture are used appropriately by combining digital resources and engaging in collaborative lessons through online platforms. However, remember that it also faces obstacles to implementing TPCK in Javanese language education, including limited technological tools, low-quality internet connections, lack of guidance and support for teachers in developing TPCK, and excessive curriculum. In other words, using TPCK in Javanese language learning contributes significantly to the field and provides insights for developing more effective teaching materials and strategies. Data show that pedagogical content technology knowledge (TPCK) in primary schools has been the focus of several studies. The researchers argue that developing valid and reliable instruments to measure teacher TPCK could support professional learning and teacher education program design. One study analyzed TPCK and the educational use of web technologies among teachers in European Union countries. The results showed that teachers had high TPCK self-efficacy and positive attitudes, and age, experience, and gender did not influence these factors. Another study focused on developing a TPCK instrument to measure the TPCK of preservice teachers majoring in primary or early childhood. This instrument has been widely used and adapted by researchers in various countries. In addition, case studies examine the use of ICT in teaching English literature to second-language learners. The study used the TPCK model to analyze the interaction between teachers' technological, pedagogical, and content knowledge in their use of technology (Finger & Capan, 2014; Jordan, 2014; Koh et al., 2015; Fatih, 2015; Jordan, 2014; Nurharsono, et al., 2020).

### ***C. Teacher's understanding of TPCK in Javanese language learning.***

The results of this study provide valuable insights into integrating technology and pedagogical strategies for understanding TPCK among Javanese language teachers. According to the results of previous research, teacher understanding is by several conditions, including very few teachers who understand TPCK in their learning. Teachers lack understanding and knowledge of educational tools. It was also found that most respondents had sufficient expertise, and 22% had a super understanding (Apriani et al., 2021; Fasha & Hibana, 2023; Munajib et al., 2021).

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Research also found that teachers have pedagogical competence in facilitating the development of student potential through educational play tools and can use educational play tools in teaching activities to help create a comfortable and practical learning environment (Fransiska, 2022).

Although this differs from this study's findings, a common thread can be drawn that demographic factors strongly influence teachers' understanding of understanding in the application of TPCK. The data found that the age range of respondents was dominated by 20-40 years (>50%), with an undergraduate education background of 86.2%, and the length of teaching varied, dominated by new teachers with a working period of 1-3 years (17.2%), 4-6 years, and more than 25 years (31%), and the situation where to perform municipal learning (56.9%), districts 20.7%, and villages 22.4%. Data shows that the age range of 25-45 years with a service life of between 10 and 20 years is a good condition for understanding TPCK. This age is included in 2013-2023, a period of adequate development of information technology.

### ***D. Impact of using technology in learning.***

This study explores the impact of technology and pedagogical strategies on Javanese language learning. It identifies the positive effects of technology, such as specialized language learning applications, digital resources, and online collaboration. Data from previous research on the use of technology in learning states that technology has not entirely positively impacted learning. The main obstacle is poor internet connectivity, so TPCK cannot be appropriately implemented in Javanese education. Internet network facilities are available in almost 96.6% of elementary schools in East Java. However, in prolonged network conditions, it was found that the average data speed only ranged from 10 to 20 Mbps. In addition, the limited ability of teachers also contributes to the non-optimal implementation of TPCK. This condition does not occur in all elementary schools. There are 15% of schools that are not included in these conditions. These findings contribute significantly to the field, providing insights for designing effective teaching materials and policies for integrating technology in Javanese language learning (Wiyanti et al., 2022) (Siregar & Musawaris, 2021).

## **V. CONCLUSION**

Using technology and appropriate teaching strategies in Javanese learning in elementary schools can improve students' learning experience. By applying the TPCK methodology, teachers can integrate technical, pedagogical, and content knowledge to create a practical Javanese learning experience. Using technologies such as learning applications, online resources, and interactive multimedia, coupled with teaching strategies such as collaborative learning, problem-based learning, and authentic assessment, can provide students with a better opportunity to develop Javanese language skills in a fun and meaningful way.

Research on the application of TPCK in Javanese language learning that focuses on technology and teaching strategies shows that TPCK has significant benefits for students' learning experience. In the context of Javanese learning in elementary schools, combining technology with the right teaching strategies can improve learning efficiency and student engagement.

Technology such as Javanese language learning applications, online resources, and interactive multimedia make accessing Javanese content more accessible and enjoyable. Students can deepen their vocabulary, grammar, and pronunciation understanding through interactive and rich multimedia. In addition, technology facilitates authentic assessments where students can record themselves in Javanese in real-life situations.

Implementing the right teaching strategies while learning Javanese is also an essential factor. Collaborative learning allows students to work, discuss, and collaborate in Javanese. Problem-based learning will enable students to solve real-world problems in Javanese, thus enhancing their critical thinking skills and creativity. Authentic assessment through technology allows students to use Javanese in real situations. Through integrating TPCK, teachers comprehensively understand Javanese technology, pedagogy, and content. This allows them to design and implement effective and engaging learning experiences. Teachers can choose the right technology, integrate it with relevant teaching strategies, and provide appropriate guidance and feedback to students. Overall, applying TPCK in Javanese learning with the right technology and learning strategies can improve language learning in elementary schools. Students can effectively develop Javanese language skills while engaging in relevant learning experiences through the holistic integration of technology, pedagogy, and content knowledge.

Improving Learning Efficiency: TPCK Implementation Research Improves Javanese Language Learning Efficiency in Elementary Schools. Integrating appropriate technology and learning strategies through the TPCK approach can enrich students' learning experience, facilitate a better understanding of Javanese language content, and increase student involvement in learning. In addition, it can increase motivation and interest in learning and provide opportunities for students to work independently. Online resources give students access to study materials anytime, anywhere, allowing the development of Javanese language

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skills alone. Using technology in their learning, students become familiar with digital tools and applications, thus improving their digital literacy.

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## Stuttering Language Disorder of an Adult Male in Bondowoso: A Case of MR AG



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**ABSTRACT:** Stuttering is a condition where a person experiences language insufficiency caused by a person's psychological condition. The more unstable the person's emotions, the more chaotic the sentence structure produced by that person will be. This study aims to determine the form and factors causing the stuttering experienced by MR.AG. This research uses a qualitative descriptive method using a psycholinguistics approach. The data in this research is in the form of verbal data, namely sounds, words, phrases, sentences, as well as non-verbal data in the form of expressions and gestures. The data source comes from an adult man who has a severe stuttering disorder, who lives in Petung village, Curahdami District, Bondowoso Regency, East Java, Indonesia. Data collection was carried out by means of observation and interviews. The results of the research showed that there were five forms of stuttering experienced by MR AG, namely repetition, pause, insertion, extension and circumlocution. The forms of repetition experienced by MR AG are repetition of sounds, both vowels and consonants, repetition of words, repetition of syllables and repetition of phrases. The pause experienced by MR AG lasted between 2 until 6 seconds. The form of insertion experienced by MR AG is the insertion of sounds " eeeee, eeeeb, eeed". Then the form of stuttering experienced by MR AG is the prolongation. The last is a form of circumlocution that occurs in MR AG. Based on the results of interviews and observations, it can be concluded that there are two main possible factors causing the stuttering experienced by MR AG. The first is neurological disorders and family pressure factors. There is a close connection between the dyslexia and epilepsy problems experienced by MR AG towards his stuttering.

**KEYWORDS:** dyslexia, epilepsy, MR AG, psycholinguistics, stuttering

### I. INTRODUCTION

Language is a medium for communicating in society to convey ideas, notions, concepts and feelings (Chaer 2015:30). Human language can be viewed as a code that connects a collection of linguistic forms to several aspects of meaning (Caplan 1994:1024). When someone speaks, there is a complicated process in the human brain which is then spoken through the speech apparatus in the oral cavity (Chaer 2015:115). If the brain and speech apparatus are in normal condition, a person will be able to speak well, but if there are abnormalities in the brain and/or speech apparatus, language disorders will occur (Chaer 2015:148). One of the language disorders is stuttering.

Stuttering is a speech fluency disorder that occurs due to excessive anxiety when talking to other people. A person who experiences this disorder has difficulty conveying what he wants to say, so he stutters, repeats his words, and suddenly stops to finish his conversation (Saragih 2018). Stuttering occurs when a person experiences difficulty in articulating the concepts in their mind. In other words, people who stutter have problems in the language production process. According to Levelt in (Zenzi M. Griffin and Victor S. Ferreira 2006:21), language production is logically divided into three main stages: deciding what to express (conceptualization), determining how to express it (formulation), and expressing it (articulation) . People with stuttering have problems in formulating and articulating the concepts in their minds (Karniol 1995).

According to the Stuttering Foundation, 70 million people worldwide suffer from stuttering. If we look at it based on gender, men have a four times greater risk than women (Fadilah 2021). The phenomenon of stuttering is more common in children aged under 12 years with a ratio of 1:20 for children aged 2-5 years and 1:100 for children aged 7-10 years (Putri 2019). Most stuttering in children can be cured. About 75 percent of children recover from stuttering and the remaining 25 percent continue to stutter, and it persists as a lifelong communication disorder (NIH 2017).



## Stuttering Language Disorder of an Adult Male in Bondowoso: A Case of MR AG

The stuttering phenomenon also occurred in a 21-year-old adult man who was called Mr. AG. Mr. AG lives in Petung Village, Curahadami District, Bondowoso Regency, East Java. In fact, those most at risk of stuttering are boys and teenagers, and it rarely occurs in adults. However, Mr AG's stuttering is something rare because Mr. AG suffered from stuttering from childhood until adulthood. Another unique thing is that Mr. AG not only has stuttering, but he also has other problems, namely dyslexia and epilepsy.

There are several researches about stuttering. The first research is research on stuttering language disorders conducted by Marisa Tomia, Grace Somelok and Elsa Latupeirissa (2019) which discusses speech disorders (stuttering) in SLB Negeri Batu Merah students, Sirimau District, Ambon City. Tomia et al studied stuttering disorders suffered by elementary school boys students. The results of the research show that there is a lot of repetition in pronouncing the vowels and consonants in the words to be said, both at the beginning, middle and end of sentences. The phenomenon of stuttering in boys is not rare because most stuttering sufferers are boys to teenage boys and can recover on their own after going through puberty. However, if after puberty you still experience stuttering then the stuttering language disorder can be said to be persistent stuttering.

The next research is a research from Ainun Rahmania Putri (2019). Putri researched stuttering in an American standup comedian. Unlike previous research which examined stuttering language disorders in children and adolescent boys. The results showed that the subject experienced language fluency problems and voice problems. There are 4 types of language fluency disorders experienced by the subject, namely repetition, extension, interjection and pause. Putri researched stuttering language disorders in adult men, but what was unique was that the research subject did not experience stuttering as a child, but the subject experienced stuttering language disorders at the age of 20, this happened because he had an accident when he was playing baseball which caused damage to his vocal cords.

Then research on stuttering was carried out by Irma Khoirot Daulay, Epiana Banjarnahor, Thio Tarigan (2021). Daulay et al researched the stuttering language disorder experienced by a 16-year-old teenage girl in Pasir Parupuk Tabing, Padang City. The results of the study showed that the subject had experienced stuttering since he was a child and continued until he was a teenager. The subject had this language disorder due to hereditary factors. This research is unique because it examines the phenomenon of stuttering language disorders in teenage girls, which is still rarely found because most cases of stuttering language disorders are experienced by boys until they reach adolescence.

The next research is research from Utami (2022) which examines the self-confidence of people with stuttering disabilities in the Indonesian Stuttering Community. The results of this research are that there is a very significant influence on the self-confidence of people who stutter if a person who stutters receives social support. The higher the social support, the higher the level of self-confidence of people with stuttering disorders in ISC (Indonesia Stuttering Community).

From the description above, it can be seen that research on the phenomenon of stuttering language disorders has been studied several times, including research on stuttering language disorders experienced by several elementary school age boys, then research on an adult man who had stuttering language disorders as an adult as well as research on stuttering disorders. Stuttering language experienced by a teenage girl. However, as far as researchers know, research on stuttering language disorders in adult men who have persistent stuttering disorders and are categorized as severe stuttering has never been studied. Therefore, this research will focus on examining the phenomenon of stuttering language disorders experienced by Mr. AG, an adult man who experienced persistent stuttering language disorders from childhood to adulthood and was included in the severe stuttering category. Therefore, researchers are interested in comprehensively examining this phenomenon, and this research focuses on the stuttering language disorder experienced by Mr. AG. The researchers are interested in researching what are the characteristics of stuttering language disorders and what factors cause the stuttering language disorders experienced by MR AG?

## II. LITERATURE REVIEW

### A. Psycholinguistics

Psycholinguistics is the study of how language is used and how language is acquired by humans. Darjowijoyo further explained that psycholinguistics is a science that studies the mental processes that humans go through in language (Darjowidjojo 2018:7). Then according to Sudarwati et al (2017:10), psycholinguistics tries to use linguistic and psychological knowledge to solve problems such as language learning, bilingualism, language disorders and so on. So, it can be concluded that psycholinguistics is a combination of two scientific disciplines, namely psychology and linguistics.

### B. Language Disorder

When speaking, there is a process of expressing thoughts and feelings (from the brain) verbally in the form of words or sentences. The brain plays a central role in processing language. If someone experiences abnormalities in brain function or



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speech organs, this can cause language problems. Language disorders are situations where a person experiences difficulty in communicating, both in receiving and producing language (Indah 2017:41). Furthermore, Indah explained that language disorders have two impacts, namely delays in language development and deviations from standard language sequences. One of language impairment is stuttering.

### Stuttering

According to Chaer (2015:153), stuttering is a disorder in speaking when speakers often experience obstacles that cause them to stop speaking suddenly. They then repeat the first syllable and the next word before finally managing to continue and complete the sentence. Sometimes, speakers face difficulties in pronouncing initial syllables, especially initial consonants or vowels. In some cases, they may choose different words and struggle to complete the sentence. People who stutter are often characterized by a tendency to repeat the first part of a spoken word or hold back sounds in the middle of a word.

A person who stutters will face difficulty in starting words due to disorders that occur in repetition, vowels, and articulation involving various parts such as the throat, palate, tongue, lips, and teeth. Stuttering often becomes worse when the person feels overly enthusiastic, tired, or stressed, or when they feel overly aware of the situation, rushed, or anxious. Situations such as speaking in front of a group or talking on the telephone can be very challenging for someone who stutters (Sari et al. 2020). Stuttering language disorders are included in psychogenic language disorders because this disorder is caused by mental disorders. This disorder can be revealed through variations in tone, intonation, voice intensity, volume, word choice, and fluency in speaking (Indah 2017:55).

From several explanations about stuttering above, it can be seen that stuttering is a condition where a person experiences language insufficiency caused by a person's psychological condition. The more unstable the person's emotions, the more chaotic the sentence structure produced by that person will be.

### Stuttering Characteristics

According to Campbell and Hill (in Ward 2006:5), there are several characteristics of stuttering, namely repetition, pauses, interjection, prolongation and circumlocution.

1. Repetition: Repeating sounds more than twice as sounds and syllables, because the stutterer loses ideas, forgets, is nervous, so he finds it difficult to talk to the person he is talking to.  
Word repetition that occurs in stuttering sufferers is divided into four types, namely:
  - Repetition of Sounds, for example: *i-i-i-ini*.
  - Repetition of syllables, example: *Ka-ka-ka-kakak*.
  - Repetition of words, for example: *I, I, I want to eat*.
  - Repetition of phrases, for example: *Brother wants brother wants* you to eat this.
2. Pause: There is a pause between spoken words, that is, having a pause, or holding back a word or words that cannot be said at all. Example: ".....(pause)...yes sis"
3. Interjection: addition of inappropriate sounds when speaking due to confusion, forgetting, nervousness, so that he is unable to express what he is thinking to the person he is talking to clearly, for example: "eh eh. I will go"
4. Prolongation: Extending the utterance of certain letters is by lengthening the sound of a word. like "mmmom, sssister"
5. Circumlocution: Substitute or replace alternative words to avoid problematic words. Example: *wwwhat* then diverts attention by changing the topic.

There are three levels of stuttering, namely normal stuttering, mild to moderate stuttering, and severe stuttering (Sekartini 2015).

### Factors Causing Stuttering

The cause of stuttering is still a mystery. However, there are several clues that point to the cause of stuttering. According to Chaer (2015:153-154), states that there are several factors that play a role in causing stuttering;

- a) Stress factors in family life.
- b) Children's education is carried out harshly and firmly by shouting and not allowing children to argue and express opinions.
- c) There is damage to the dominant hemisphere of the brain
- d) Family hereditary factors.

According to Fraser (2022:23-24), there are several factors that cause stuttering, including family hereditary factors, problems with speech nerve muscle disorders, and stress due to the surrounding environment. Then according to the NIH (NIH 2017), the factors that cause stuttering are heredity from family members, damage to the brain, and psychological trauma.

From the several experts regarding stuttering language disorder, it can be concluded that stuttering language disorder is a condition where a person experiences language disfluency by repeating words, giving pauses or changing topics caused by

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several things, including problems with the child's growth, neurogenic disorders, due to hereditary factors. as well as pressure from the stuttering environment.

### III. RESEARCH METHODOLOGY

This type of research is descriptive qualitative because this research will present, describe and explain in detail the phenomenon of stuttering experienced by Mr AG. This is in line with the several experts who state that qualitative research aims to gain a deep understanding of the phenomena experienced by research subjects, such as behaviour, perceptions, motivations, actions and other aspects as a whole (Sahir 2021; Kusumastuti and Khoiron 2019; Santosa 2017; Zaim 2014).

The data in this research is linguistic data in the form of verbal data and non-verbal data from Mr. AG. Verbal data is in the form of words, phrases, sentences, while nonverbal data is in the form of gestures demonstrated by research subjects as a result of the behavioural expression of the stuttering they suffer from. Apart from that, information from parents and relatives who knew MR.AG was also used as data in this study. The data source in this research is an adult man who has a severe stuttering disorder, who lives in Petung village, Curahdami District, Bondowoso Regency, East Java. Apart from that, parents and relatives who knew MR. AG was also the data source for this research.

The data collection techniques applied in this research are observation techniques, interviews. In this research, interviews were conducted in an unstructured manner with the consideration that the research subject was someone who had a stuttering language disorder and had never received education, so an unstructured interview would be more appropriate to use so that the subject felt comfortable and not psychologically burdensome. In the unstructured interview method or in-depth interview, the researcher only presents a few opening questions to the informants to stimulate them to provide comments or answers.

Apart from conducting interviews, the researcher also carried out participatory observation of the subject, in this case Mr. AG, because with participatory observation the subject will feel less burdened and more natural in communicating, so the data obtained is more valid in order to support all data collection activities so that data is not missed.

So that the results of observations and interviews produce valid data, data validity testing is carried out using triangulation techniques. According to Sugiyono (2022:224-225), the triangulation technique is a data collection approach that involves various different methods to obtain data from the same source, such as participant observation, in-depth interviews, and documentation. By applying triangulation techniques in data collection, it is hoped that it can increase the consistency, completeness and certainty of the data obtained in the research. To test the validity of the data, this research uses credibility tests including extending observations, increasing persistence, triangulation, discussions with colleagues, member checks, and negative case analysis.

### IV. RESULT

#### A. Characteristics

Based on research, it was found that MR AG has all forms of stuttering including; repetition, pause, insertion, extension and circumscision. When Mr. AG is confused, he will stutter even more. This happens when he tries to explain something, explain a location, describe something, or retell an incident.

1. Repetition: Repeating sounds more than twice, sounds and syllables, words or phrases. This is because stutterers lose ideas, forget, are nervous, so they find it difficult to talk to the person they are talking to. MR. AG experiences all forms of repetition including repetition of sounds, syllables, words and phrases. In the repetition form, MR AG's stuttering occurs at the beginning, middle and end of sentences. If in a conversation MR AG feels uncomfortable, too excited, confused, tries to lie, panics then the repetition in MR AG's speech will occur more frequently. However, if MR AG is in a more relaxed condition, the repetition in MR AG's speech will decrease. MR AG will tend to repeat sounds or words that are close to stop-plosive consonants and nasals consonants.

a) **Sound Repetition:** Sound repetition can include various types of repetition, such as repeating consonant or vowel sounds.

#### Datum 1/PB :

Researcher : *"janda ya?"* ("is she a widow?")

MR AG : *"bbbukan mbak"* ( nno sis)( recording1 minute 00.56-01.00).

In this dialogue, the researcher is discussing the love story of MR AG. The researcher asked about the status of his new girlfriend, whether she was a widow or not. MR AG seemed surprised to hear the question then he answered with some difficulty. Non-verbal data that can be seen in his facial expression is that his lips tremble slightly and his eyes blink several times, but his neck muscles do not appear too tense. This shows that he is not too nervous. Therefore, the form of speech is not

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too stuttering. This is proven by the fact that there is only one repetition of the consonant sound, namely the 'b' sound at the beginning of the sentence "*bbbukan mbak* (no sis)." In this speech, MR AG experiences difficulty in pronouncing the consonant sound /b/. The consonant sound /b/ is included in the bilabial plosive consonant category. There was extraordinary emphasis when he wanted to pronounce the consonant /b/ and in the end he repeated the sound and finally succeeded in saying the word he meant, namely the word "*bukan* (not)"

### Datum 2/PB

Researcher : "*Cewekmu mana yang mana pakuwesi?*" (Which girl? Pakuwesi?)

MR AG : "*endak **aaabis** dah mbak*" (no ooover sist) (recording1 minute 02.00 - 02.09).

In this dialogue, the researcher is discussing the love story of MR AG. Researchers asked about his old girlfriend. MR AG didn't seem too surprised to hear the question then he answered with some difficulty. Non-verbal data that can be seen in his facial expression is that his lips tremble slightly and his eyes blink several times, but his neck muscles do not appear tense. This shows that he is not too nervous. Therefore, the form of speech is not too stuttering. This is proven by the fact that there is only one repetition of the vowel sound, namely the 'a' sound in the middle of the sentence "*endak **aaabis** dah mbak*". In this speech, MR AG has difficulty pronouncing the word "*abis*" which is characterized by the prolongation of the sound /a/ repeatedly. This happens because he has difficulty pronouncing the consonant letter /b/. The consonant sound /b/ is included in the bilabial plosive consonant category. There was extraordinary pressure and effort to pronounce the consonant /b/, then there was an extension of the vowel sound /a/ which was next to the consonant sound /b/ and then he succeeded in saying the word "*abis* (over)".

b) **Syllable Repetition:** a form of stuttering disorder that occurs when someone repeats certain syllables while speaking.

### Datum 2/PS

Researcher: "*kamu dapat berapa kalau jemur ga?*" (how much money do you get when you work?)

MR.AG : "*dadapat ---(pause 3 second) seratusribu cuma*" (gegeget ----(pause 3 seconds) one hundred thousand rupiah only" (recording1 minute 03.00-03.08).

In this dialogue the researcher discussed MR AG's work, namely drying tobacco. Researchers asked MR AG's wages per day. Then MR AG answered that he only earned one hundred thousand a day and a night. Non-verbal data that appears are trembling lips, eyes that blink several times but the neck muscles are not too tense. From the non-verbal data in the dialogue, it can be seen that MR AG is in a relaxed state. The form of stuttering in this speech is the repetition of the syllable, namely 'dada' at the beginning of the sentence "*dadapat ---(pause 3 seconds) one hundred thousand only.*" In this data, it appears that MR AG has difficulty pronouncing the apico-dental stop consonant /d/. MR AG seemed to be trying hard to pronounce the sound by repeating the syllable /da/ before finally succeeding in saying the word "dapat (get)".

### Datum 7/PS

Researcher: "*kamu pernah pacarana sama janda berapa kali ga?*" (do you ever have relationship with a widow?)

MR AG : "*pacaran **titiga** kali mbak*"( in love ttthree times sis" (recording 4 minute 09.45-09.51).

In this dialogue the researcher asked about MR AG's relationship with someone. MR AG seemed enthusiastic about the researcher's questions. The non-verbal data that appears is that MR AG did not blink a few times, his expression was still standard but his lips were shaking slightly. The form of stuttering that occurs in MR AG's speech is the repetition of the syllable "ti" in word three. Repetition occurs in the middle of a sentence. These data show that MR AG has difficulty pronouncing the apio-dental stop consonant /t/. He repeated the /ti/ syllable several times until he managed to pronounce the word "*tiga* (three)."

c) **Word Repetition:** one of the characteristics of stuttering, where a person repeats certain words repeatedly in conversation.

### Datum 3/PK

MR AG : "*masak apa mbak?*" (what do you cook?)

Researcher: "*ah tak pikir kamu ga jadi akhirnya ga jadi masak rica-rica ga*" ( ah I thought you didn't come here so I don't cook rica-rica)

MR AG : "*adoooh*" (OMG)

Researcher: "*makanya kamu pagi-pagi ditelpon og, nanti dah*" ( it is your fault because you did not answer my call)

MR AG : "*baru baru baru bangun mbak*" ( just just just wake up sis)( recording1 minute 04.50).

In this dialogue, MR AG asked the researcher about the researcher's cooking menu. However, researchers blamed MR AG because MR AG could not be contacted. However, even though he was blamed, MR AG did not feel intimidated and was still

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calm. Therefore, MR AG's non-verbal data is that his lips did not tremble too much and his eyes blinked several times, but his neck muscles did not appear to be tense. The form of stuttering in this dialogue is the repetition of the word '*baru* (just)' at the beginning of the sentence "*baru bangun mbak* (just woke up, sis)." From these data it is known that MR AG has difficulty pronouncing the bilabial plosive consonant sound /b/. When he tried to say the word "wake up" MR AG had difficulty starting the /b/ sound so he repeated the word "*baru* (just)" before the /b/ consonant sound until finally he managed to say the word "*bangun* (wake up)."

### Datum 4/PK

Mr.AG : " Ini *bbaru baru* kenal semalem sama aku mbak ( I just knew her last night, sis) "

Researcher : " oh baru kenal? (ooh just know her)"(recording1 minute ke 06.56-07.01).

In this dialogue, MR AG said that he had a new girlfriend. MR AG's non-verbal data was that his lips trembled and his eyes blinked several times, but his neck muscles did not appear to be tense. The form of stuttering in this dialogue is the repetition of the word '*baru* (just)' at the beginning of the sentence "" *Ini bbaru baru kenal semalem sama aku mbak* (I just knew her last night, sis)." From the non-verbal data and non-verbal data in this dialogue, it can be seen that MR AG is in a relaxed state. From these data it is known that MR AG has difficulty pronouncing the dorso veral plosive consonant sound /k/. When he tried to pronounce the word "*kenal* (knew)," MR AG had difficulty starting the /k/ sound, so he repeated "*baru* (just)" by emphasizing the /b/ consonant sound until finally he managed to say the word "*kenal* (knew)."

d) **Phrase Repetition:** a phenomenon in speech disorders in which a person repeats certain phrases repeatedly while speaking.

### Datum 1/PF

Researcher : "*yang mutusin kamu atau cewekmu?*"( who breaks the relationship?)

MR AG : "*saya haha* ( me hahaha)"

Researcher : "*kenapa?* (why)"

MR.AG : "*ya gapapa mbak haha lama dah mbak lama dah mbak* ( nothing haha it is long time sis long time sis)"(recording1 minute 02.11-02.17).

In this dialogue the researcher asked about MR AG's love story with his ex-girlfriend. In this dialogue, MR AG seemed so enthusiastic that he laughed out loud. The non-verbal data from MR AG is that his face does not appear tense and his neck muscles do not appear tense. The form of stuttering in the dialogue is the repetition of the phrase '*lama dah mbak* (long dah sis)' which is located at the end of the sentence "*ya gapapa mbak haha lama dah mbak lama dah mbak* (yeah nothing sis haha it is long time sis long time sis)".

### Datum 3/PF

MR AG : "*pak ini ga ada ga ada titipan? Titipan apa? Paket. Ga ada. kakatanya abang mundur mundur mundur*" ( sir, is there any deposit stuff ? what deposit? A package. Nope. Told by brother step back step back.)

MR M : " hahaha" (hahaha) (recording 6 minute 01.53-02.03).

In this dialogue, MR AG is telling a story about his experience with MR M when they caught a bus that was entrusted with a package by someone. MR AG seemed very enthusiastic about telling the story, his lips trembled and his eyes blinked several times. Therefore, there are several forms of stuttering when he tells stories. One of them is the repetition of the phrase *ga ada ga ada* ( is there any?) in MR AG's speech. This repetition occurs at the beginning of the sentence "*Pak ini ga ada ga ada titipan? Titipan apa? Paket. Ga ada. kakatanya abang mundur mundur mundur*" (sir, is there any deposit stuff? what deposit? A package. Nope. Told by brother step back step back).

2. **Pause:** There is a pause between spoken words, that is, having a pause, or holding back a word or words that cannot be said at all. In MR AG's speech there is a pause of between 2-6 seconds. This shows that MR AG has a severe language disorder. Based on observations, when MR AG is in an uncomfortable mood, too excited, confused about retelling an incident, trying to lie and panicking, the pause between one word and another will be longer. In fact, the longest pause experienced by MR AG reached 6 seconds.

### Datum 1/JD:

Researcher : "*kamu dapat berapa kalau jemur ga?*" (how much mooney do you get when you work?)

MR.AG : " *dadapat ---*(pause 3 seconds) *seratusribu cuma*" (gegeget ----(pause 3 seconds) one hundred rupiah only)(recording1 minute 03.00-03.08).

In this dialogue the researcher discussed MR AG's work, namely drying tobacco. Researchers asked MR AG's wages per day. Then MR AG answered that he only earned one hundred thousand a day and a night. Non-verbal data: Non-verbal data that

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appears is trembling lips, eyes that blink several times but the neck muscles are not too tense. There are two forms of stuttering in this speech, namely repetition of syllables and a 3 second pause in the middle of the sentence "dadapat ---(pause 3 seconds) one hundred thousand Cuma." From the non-verbal data and verbal data in the dialogue, it can be seen that MR AG is in a relaxed state. From this data it is known that he paused for 3 seconds because he felt confused about having to say the nominal because it was related to his dyslexia disorder.

### Datum 6/JD

Researcher : "kerja dia?" (does she work?)

MR AG : "iya" ("yes")

Researcher : "kerja di?" (where?)

MR AG : " ini--- ( pause 6 seconds) jjualan baju itu mbak diii apa peep aaapa sini dah mbak peep apa sini dah ya toko diiii Nangkaan itu Nangkaan agak keeeesana itu apa itu toko apa itu ga tau (" this—pause 6 seconds—ssells cloth sis iiii what peep whaat here sis peep what is that shop iiii Nangkaan that there what shop what I don't know ( recording1 minute 09.28 – 09.51).

In this dialogue the researcher asked about the job of MR AG's new girlfriend. MR AG seemed confused about explaining the workplace he meant. This can be seen from non-linguistic data from MR AG, namely tense facial expressions, eyes blinking several times, lips trembling and then the neck muscles calming down. The form of stuttering in this dialogue is a 6 second pause at the beginning of the sentence "' ini--- ( pause 6 seconds) jjualan baju itu mbak diii apa peep aaapa sini dah mbak peep apa sini dah ya toko diiii Nangkaan itu Nangkaan agak keeeesana itu apa itu toko apa itu ga tau." ("this—pause 6 seconds—ssells cloth sis iiii what peep whaat here sis peep what is that shop iiii Nangkaan that there what shop what I don't know. From this data it is very clear that MR AG is having difficulty explaining what is on his mind.

3. **Interjection:** Insertion or addition of inappropriate sounds when speaking due to confusion, forgetting, nervousness, so that he is unable to express what he is thinking to the person he is talking to clearly. The form of insertion stuttering experienced by MR AG is inserting unnecessary sounds. MR AG did this accidentally because MR AG could not properly control what he said. The more excited, panicked, confused, enthusiastic, uncomfortable he is, the more insertions he makes into his speech. The insertion experienced by MR AG was the insertion of the sounds eeee, eeeeb, eeed when the subject wanted to say a word that began with a plosive stop consonant and a nasal.

### Datum 1/IJ

MR AG : "lama ya mbak eeed mmasak rica rica ya mbak?" (is that long sis eeed ccooking rica rica sis?)

Researcher : "2 jam nga besok dah (2 hours nga .. how about tomorrow?) (recording1 minute 05:43-05:51).

In this dialogue MR AG asked about the duration of cooking rica-rica promised by the researcher. He seemed very enthusiastic about the topic. This can be seen from non-verbal data on MR AG, namely blinking eyes and trembling lips. The form of stuttering in this dialogue is the insertion of the eeed sound twice in one sentence. The insertion is in the middle of the sentence "lama ya mbak eeed mmasak rica rica ya mbak?" ( is that long sis eeed ccooking rica rica sis?) From these data it can be seen that MR AG has difficulty pronouncing the bilabial nasal consonant /m/. There is an insertion of the sound /eeed/ when he wants to say the word "masak (cook)".

### Datum 2/IJ

Researcher : " kamu baru kenal kok sudah nginep, Badean mana?" ( you just recognize her. Why did you sleep in her house?)

MR AG : " booh ini—(pause 3 second) kan langsung di---(pause 4 seconds) aap apa ya ga sengaja itu mbak" ( booh this—pause 3 seconds- directly ---(pause 4 seconds) wh what accidentally")

Researcher : " kok ga sengaja?"( how accidentally?)

MR AG : " ya kadang kadang---(pause 2 seconds) di wa saya langsung kamu mau eeed jjadi pacar aku? Ahahaha (ya sometimes—(pause 2 seconds) chatted by WA directly say do you eeed become my girl friend? Ahahaha/

Researcher : " terus?"(" then?")

MR AG : " seterusnya seterusnya—(pause 2 seconds) iya laalaangsung ----(pause 4 secondss) videocallan gitu mbak, oh ya video call (after that after that—(pause 2 seconds) ya langsung --- ( pause 4 seconds) videocall sist) ( recording1 minute 07.17- 07.37).

In this dialogue the researcher discussed MR AG's activities which were considered incorrect. Researchers criticized MR AG for staying at the house of a woman he had just met. MR AG seemed surprised and uncomfortable with the researcher's criticism. This can be seen from the non-linguistic data on MR AG, namely the eyes blink rapidly, the lips tremble, the head



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sways slightly and the neck muscles tense. Therefore, there are several forms of stuttering at once in MR AG's speech. One of them is the insertion of the sound 'eeed' in the middle of the sentence "'*ya kadang kadang---(pause 2 seconds) di wa saya langsung kamu mau eeed jjadi pacar aku? Ahahaha* (ya sometimes -(pause 2 seconds) chatted by WA directly say do you eeed become my girlfriend? Ahahaha)'. From these data it can be seen that MR AG has difficulty pronouncing the Medio-Palatal plosive consonant /j/. There is an insertion of the sound /eeeed/ when he wants to say the word "so". By starting with the sound /eeeed/ then continuing to emphasize the consonant /j/ until finally you can successfully pronounce the word 'jadi (became)'".

4. **Prolongation:** Extending the utterance of certain letters is by lengthening the sound of a word. If MR AG is in a state of discomfort, too excited, confused, trying to lie, panicking then what will happen is that the form and duration of extensions will be increasingly found in his speech. The lengthening carried out by MR AG tends to lengthen the sound when the subject wants to say a word that begins with a plosive stop consonant and a nasal.

### Datum 1/PP

Researcher : "*terus?*" ( "then?")

MR AG : "*saya yang yang bibilang ibu bu saya mmm mau nginep di—rumahnya temen gitu*" ( I told mom, mom I want to sleep in my friend's house) (recording1 minute 01.06-01.13).

In this dialogue the researcher discussed MR AG's activities the previous night. The researcher asked a 'keep going' provoking question so that MR AG would continue his story. Then MR AG told the chronology of his mother allowing him to stay overnight at someone else's house. MR AG seemed enthusiastic about sharing his new experience. Non-verbal data that appears are trembling lips, eyes that blink several times but the neck muscles are not too tense. The form of stuttering in this speech is an extension of the letter 'm' in the middle of my sentence, which says that my mother wants to stay at my friend's house." From these data it can be seen that MR AG has difficulty pronouncing the bilabial nasal consonant sound /m/, so when he wants to say the word "*mau (want)*" there is a lengthening of the /m/ sound before finally succeeding in saying the word "*mau (want)*".

### Datum 4/PP

Researcher : "*kamu kok bisa dapat nomornya dari mana?*" ( how can you get her number?)

MR AG : "*ddd dari facebook hehe*" (ffrom face book hehe)

Researcher : "*oh dari facebook*"( oh from facebook)

MR AG : "*mangkanya mbak—(pause 2 seconds) ya dah*" ( that's why sist -(pause 2 seconds) its okay (recording 1 minute 07:37- 07:48)

In this dialogue, the researcher asked about MR AG's introduction to his new girlfriend. MR AG admitted that he got the number from Facebook. MR AG seemed enthusiastic in explaining the beginning of his introduction. This can be seen from the non-verbal data from MR AG that his facial expression shines, his eyes blink several times and his lips tremble slightly when he stutters. There are several forms of stuttering in the dialogue, one of which is the extension of the letter 'd' at the beginning of the sentence "*ddd dari facebook hehe (from facebook hehe)*". From this data it can be seen that MR AG has difficulty pronouncing the apico-dental plosive consonant sound /d/ so when he wants to say in the word "*dari (from)*" there is an extension of the /d/ sound before finally successfully pronouncing the word "*dari (from)*".

5. **Circumlocution:** Substitute or replace alternative words to avoid problematic words. The form of circumlocution experienced by MR AG occurred when he felt so confused about explaining something that he substituted or substituted alternative words to avoid problematic words. As happened when MR AG, when he was explaining the location, explaining the reasons for an event, retelling an incident, he experienced such great confusion that some form of stuttering appeared and then he gave up by stopping his speech and choosing to change the topic of conversation.

### Datum 1/CL

Researcher : "*kerja dia?*" ( does she work?)

MR AG : "*iya*" ( "yes")

Researcher : "*kerja di?*" ( "where?")

MR AG : "*ini--- ( pause 6 seconds) jjuualan baju itu mbak diii apa peep aaapa sini dah mbak peep apa sini dah ya toko diiii Nangkaan itu Nangkaan agak keeeesana itu apa itu toko apa itu ga tau*" ( " this—pause 6 seconds—ssells cloth sis iin what peep whaat here sis peep what is that shop iin Nangkaan that there what shop what I don't know) ( recording1 minute 09.28 – 09.51)

In this dialogue the researcher asked about the job of MR AG's new girlfriend. MR AG seemed confused about explaining the workplace he meant. This can be seen from non-linguistic data from MR AG, namely tense facial expressions, eyes blinking several times, lips trembling and then the neck muscles calming down. There are several forms of stuttering in this dialogue, one



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of which is circumlocution. It can be seen in the dialogue that MR AG had difficulty in describing the place he was referring to then in the end gave up by saying 'I don't know.' that shop iiii Nangkaan that there what shop what I don't know .

The research results showed that there are five forms of stuttering experienced by MR AG, namely repetition, pause, insertion, prolongation and circumlocution. The forms of repetition experienced by MR AG are repetition of sounds, both vowels and consonants, repetition of words, repetition of syllables and repetition of phrases. The pause experienced by MR AG lasted between 2 and 6 seconds. The form of insertion experienced by MR AG is the insertion of sounds eeeee, eeeeb, eeed. Then the form of stuttering carried out by MR AG is prolongation. When MR AG wants to say a word that begins or is close to the stop plosive consonant sound /b,d,j,g,t,k,p/ and nasal /m,n/ then MR AG will repeat the sound, syllable, word adjacent to the consonant. Then there was also the insertion of certain sounds when he was about to pronounce consonants that were difficult for him to pronounce, namely stop plosive /b, d, j, g, t, k, p/ and nasal /m, n/. Apart from that, there are also pauses and prolongation in letters adjacent to the stop plosive consonants /b,d,j,g,t,k,p/ and nasal /m,n/.

### B. Factor

Until now, the factors causing stuttering are still a mystery. However, there are several clues that point to the cause of stuttering. The condition of stuttering occurs due to multiple factors that occur in people who suffer from stuttering, namely problems with child development, genetic or hereditary factors, neurogenic disorders and pressure from parents or family;

#### 1. Child growth and development problems:

If it is related to children's growth and development problems. MR AG is growing and developing well. He has a tall body posture, has complete and well-functioning speech organs and his emotional development is also developing as it should. It was proven that he had not even just one lover. So, the growth and development problems that caused MR AG to experience stuttering were deemed inappropriate.

#### 2. Genetic factors;

If a person in the family has someone who is stuttering, the risk of offspring experiencing stuttering is 60%. At first, researchers suspected that MR AG's father was stuttering because he was speaking haltingly. However, after in-depth observations it can be concluded that MR AG's father did not have a stuttering problem but had difficulty speaking Indonesian. So there is a gap in the process of translating Madurese as a mother tongue into Indonesian as a second language.

Then, according to the results of interviews with MR AG's mother, it was stated that none of MR AG's family, in this case his grandfather and great-grandmother, grandfather, father's grandmother, mother, uncle and siblings, had a stuttering language disorder. So it can be concluded that based on the results of interviews with MR AG's mother and observations of his entire family, heredity is not the factor causing MR AG to experience stuttering.

#### 3. Neurogenic Disorder

Ward explained that stuttering can occur due to neurological damage such as stroke, head injury and epilepsy. According to Travis and Orton in (Ward 2006:36), stuttering is caused by an imbalance in hemisphere function. Under normal conditions, it is the left hemisphere that takes the role of processing language so as to produce coherent and comprehensible speech, whereas in cases of stuttering there is interference with the left hemisphere which causes the right hemisphere to take over the role of producing language.

MR AG apart from having a stuttering language disorder, he also has problems with epilepsy and dyslexia. The family said that since childhood, MR AG often had high fevers accompanied by seizures until finally he was diagnosed by a doctor as having epilepsy. Until now, MR AG often experiences seizures (epilepsy) when he feels tired. It is very likely that MR AG's stuttering was caused by damage to the left hemisphere caused by his epilepsy. This is because when someone experiences a seizure there will be damage to the person's nervous system. This is in line with Ward's statement (Ward 2006:22) which states that epilepsy can cause neurological damage to one or both hemispheres. However, in MR AG's case, the left hemming sleeve was damaged.

Under normal conditions, it is the left hemisphere that takes the role of processing language so as to produce coherent and comprehensible speech, whereas in cases of stuttering there is interference with the left hemisphere which causes the right hemisphere to take over the role of producing language. So, in MR AG's case there was an imbalance between the left hemisphere and the right hemisphere which caused what he was going to say to be disturbed.

Evidence that MR AG's left hemisphere was damaged is; MR AG has dyslexia. MR AG's mother said that MR AG could not read or write and did not know the nominal value of money. Even when he was at school, MR AG would break his pencils and eat his books every day because he really hated studying. According to Mar'at (2015:85), the left hemisphere in someone who has dyslexia is immature (disordered). The dyslexia experienced by MR AG proves that there is a problem with his left hemisphere which causes him to experience stuttering.

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The next evidence is that MR AG does not experience stuttering when he sings. Based on research conducted by Ward (2006:15), it is stated that singing activities are managed by the right hemisphere. This is very different when someone wants to speak, it is the left hemisphere that plays a role in producing language. MR AG's fluency in singing proves that MR AG's right hemisphere is very dominant compared to his left hemisphere. Therefore, MR AG experienced a stuttering language disorder because the left hemisphere as a language controller was impaired.

### 4. Pressure

If children's education is carried out harshly and firmly by shouting and not allowing children to refute and express opinions, the risk of experiencing stuttering will be high. Based on the results of interviews with MR AG's mother, interviews with MR AG and observations of MR AG's daily life, it can be concluded that MR AG has received harsh treatment from his mother since childhood.

According to MR AG's mother, from childhood until now MR AG's mother always scolded MR AG and did not even hesitate to hit MR AG. This statement was reinforced by a statement from MR AG that his mother was very fierce. MR AG said that he was not afraid of anyone but he was only afraid of his mother because her mother was very fierce and often hit him. It turns out that the shouting and beatings that MR AG experienced since childhood caused psychological problems. So it is very likely that family pressure also played a big role in causing MR AG to experience stuttering.

So, it can be concluded that from the four possible factors causing stuttering, neurological damage and pressure from the family are the dominant factors causing MR AG to experience persistent stuttering. This is in line with Ward's statement (Ward 2006:4), that stuttering in adults is relatively rare and can be identified in one of two forms, namely: neurogenic stuttering (NS) which arises due to damage to the nervous system, or psychogenic stuttering, stuttering. (PS) which can appear after a traumatic experience.

## V. CONCLUSION

Based on the results of data analysis, it can be concluded that there are five forms of stuttering experienced by MR AG, namely repetition, pause, insertion, extension and circumlocution. The forms of repetition experienced by MR AG are repetition of sounds, both vowels and consonants, repetition of words, repetition of syllables and repetition of phrases. The pause experienced by MR AG lasted between 2 and 6 seconds depending on MR AG's psychological condition at that time. The more chaotic the psychological condition, the longer the pause duration will be. The form of insertion experienced by MR AG is the insertion of sounds *eeee, eeeeb, eeed*.

Then the form of extension experienced by MR AG was an extension. If MR AG is in a state of discomfort, too excited, confused, trying to lie then what will happen is that more and more forms of extension will be found in his speech. Lastly, there is a form of circumlocution that occurs with MR AG, namely when he feels he is in a situation that makes him confused and has difficulty pronouncing a sentence, he will immediately change the topic which can save him from saying that sentence. MR AG will find it difficult if asked to explain the location, describe something and retell an incident. This will make him confused then some form of stuttering appears and, in the end, he gives up his efforts by changing to another topic.

There are two main possible factors causing the stuttering experienced by MR AG. The first is neurological disorders and family pressure factors. There is a close connection between the dyslexia and epilepsy problems experienced by MR AG and the stuttering language disorder he experiences. Epilepsy causes damage to the left hemisphere which functions as a language producer. Dyslexia and stuttering are evidence that his left hemisphere is impaired. Apart from neurological damage, the possible cause of MR AG's stuttering language disorder is pressure from the family.

This study examines stuttering language disorders in adult men who are included in the severe stuttering category. Research on the phenomenon of stuttering in adult women is interesting because stuttering in adult women is still very rare. This is because men are 4 times more at risk than women and the largest percentage of stuttering sufferers are children and teenagers. So, a suggestion for further research is research on stuttering language disorders in adult women.

## ACKNOWLEDGMENT

I would like to express my deepest gratitude to Master of Linguistics, Faculty of Cultural Studies, Jember University that have provided facility and valuable support in writing this article. I also want to express my gratitude to MR AG for agreeing to be the subject of this research. Without his contributions, this article would not have been possible. Thank You.

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## **Development of Android- Based Learning Media in Object-Oriented Programming Subjects in Vocational High School Case Study: SMKN 1 Ranah Ampek Hulu Tapan**



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**ABSTRACT:** The object-oriented programming learning process at SMKN 1 Ranah Ampek Hulu Tapan is not optimal, this is due to several problems, namely the availability of learning media only in the form of printed books that students borrow from the school library. This causes students to lack understanding of the learning material and are less motivated to study and causes students' grades to be low according to the data obtained that the students' KKM completeness score is only 64.28%. The aim of this research is to develop valid and practical object-oriented programming learning media.

The research method used is development research (R&D) with the ADDIE model which consists of 5 stages, namely analysis, development, design, implementation, and evaluate at each stage. This research involved 28 class XI RPL students who took part in object-oriented programming lessons.

Results This research is in the form of Android-based learning software that can be used as a complement to the learning process, especially object-oriented programming subjects. This product has been grade tested its validity by several material experts and learning media experts and an average validity value of 87.79% was obtained. And the practicality test results from users, namely teachers and students, obtained an average practicality value of 85.89%.

**KEYWORDS:** Development, Android, Validity, Practicality

### **INTRODUCTION**

Education is something that is not can come off and always stick in human life. Education is the main aspect of its creation quality human resources, with education is able to create humans become individuals beneficial for life and processes learning that can help students in developing his abilities (Irsyadunas, 2021). Education \_ is the main aspect for its creation quality human resources, with education is able to create humans become individuals beneficial for the life of a nation to achieve state goals.

The development of information and communication technology such as *Android* has not been utilized to support the learning process. Most teachers and students just use *android* to open social networks or games. Supposedly technological advances such as This *Android* can be used in the learning process. In the learning process, an educator is needed who is able to integrate information and communication technology as time goes by. As an educator, you are required to be able to creatively design teaching materials that enable students to directly utilize the available learning resources(Kuswanto, 2019)

Learning media is one of the methods or tools used in the teaching and learning process. Learning media is something that involves *software* and *hardware* that can be used to convey the content of teaching materials from learning sources to students (individuals or groups) which can stimulate students' thoughts, feelings, attention and interests in such a way that the learning process inside/outside the classroom become more effective (Cholifah, 2019).

According to (Firmadani, 2020)identifying several benefits of media in learning, namely: 1) delivery of subject matter can be uniform, 2) the learning process becomes clearer and more interesting, 3) the learning process becomes more interactive, 4 efficiency in time and energy, 5) improves the quality of student learning outcomes, 6 ) media allows the learning process to be carried out anywhere and at any time, 7) media can foster students' positive attitudes towards the material and learning process, and 7) change the role of teachers in a more positive and productive direction. (Firmadani, 2020). The use of learning media can be applied at any level of education, be it formal or non-formal education as long as the aim is to simplify or help the teaching and learning process. One level of education that requires learning media in the teaching and learning process

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is Vocational High School (SMK). SMK Negeri 1 Ranah Ampek Hulu Tapan has several skill competitions, one of which is Software Engineering. Software engineering majors, especially object-oriented programming subjects, have not utilized Android devices.

Several related studies have been carried out previously, such as Noval Fajri Hamdani's research with the title development of science learning media on human digestion material, the research method used was development with a 4D model, the number of respondents was 30 students and 6 teachers. The research results show that the feasibility test of learning media from the content aspect is 88.19%, presentation is 93.74%, language is 89.81%, and graphics is 90.00%. Based on research with (Hapsari, 2021) the title "Development of *Android* -Based Interactive Learning Media on Matrix Operations material" it produces a learning media in the form of an *Android application* which contains operations on matrices. The feasibility test from material experts was 93.18%, media experts were 88.59%, and assessments from students were 83.18%, so an average of 88.32% was obtained. Research (Larassaty, 2021) with the title "Development of *Android* -Based Media Assisted by the Ispring Suite Application in Mathematics Learning for Fifth Grade Elementary School Students" Results from the research, produced *Android-based mathematics learning media* on plane material for fourth grade SD/MI students. The material and media expert assessment of the product was 86.67%, with a very good category and the student assessment of mathematics learning media was 87.8%.

Based on previous research and referring to the results of observations and interviews conducted on July 12 2023 with resource persons, object-oriented programming subject teachers and class XI RPL students at SMK Negeri 1 Ranah Ampek Hulu Tapan, information was obtained that there were several obstacles that occurred in the learning process, namely 1 ) limited learning media facilities, 2) students' difficulties in understanding learning material and 3) low student learning outcomes. From these three problems, it can be explained that learning media facilities are limited, where the media used is still conventional, namely using printed books borrowed from the school library for a certain period of 1 week. The use of printed books is also difficult for students to understand both in terms of the use of language and the existing material. The limitations of class XI object-oriented programming textbooks can also affect students' interest in learning. Inappropriate learning media can also affect student learning outcomes. This can be seen from the students' final semester exam scores that have not reached the Minimum Completeness Criteria (KKM) score, namely 75. Of the 28 students, only 10 completed and 18 did not. Or the percentage that was completed was 35.71% and that which was incomplete was 64.29%.

### RESEARCH METHODS

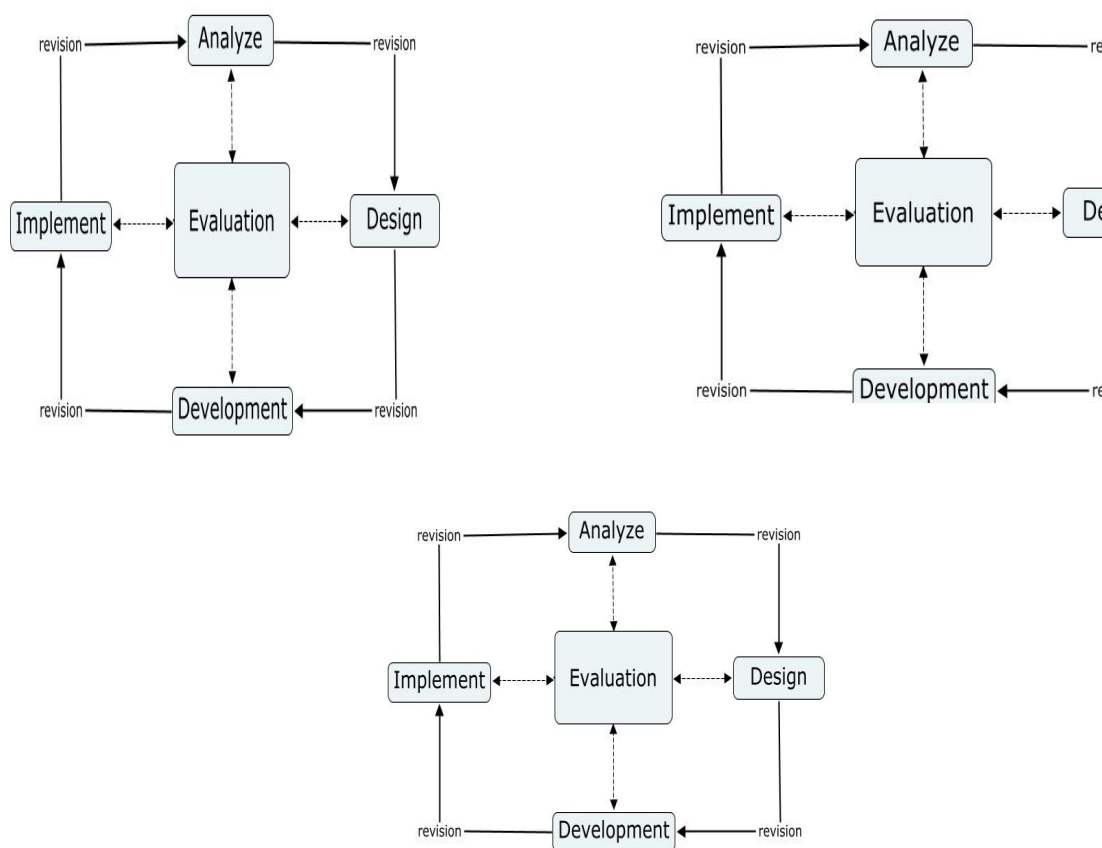
This study was carried out by students in the RPL class XI at SMKN 1 Ranah Ampek Hulu Tapan totaling 28 people in object-oriented programming lessons year lesson 2022/2023. Location research on Jalan Padang Kejai Kenagarian Kampung Tengah Tapan, Ranah Ampek Hulu Tapan sub-district, Pesisir Selatan Regency, West Sumatra Province. An "informant", that is person Which is part from background behind study and used For give information about circumstances And situation Which become part from background behind study, is focus investigation.

The kind of research that was category of development research, abbreviated as R&D, with the ADDIE development model. R&D aim For create new products or perfect it product Which Already There is. R&D is approach or process study Which Enough strong For increase practice teaching And learning. More special again, necessary done study development For look for solution challenge learning Which related with problems certain (Tegeh, 2013). ADDIE Model Which is Wrong One model design learning systematic is a paradigm development Which used in process development content learning This.

Decision For use model This taken after consider that model This follow process development Which systematic and based on base theoretical design learning. Model This arranged in a way programmed, with Suite activity Which systematic, For solve the problem learning Which related with source Study Which in accordance with need And characteristics participant educate.

Model This arranged in a way programmed with Suite activity Which systematic. Model This consists from five step, that is: (1) analysis, (2) design, (3) development, (4) implementation, And (5) evaluation. The ADDIE model can be shown in Figure 1 below:

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**Picture 1. ADDI E Development Model**

Based on Figure 1, each stage can be described as follows:

1. Analysis, at the analysis stage carried out is analyzing the needs for the learning media to be designed. The activities carried out at this stage are as follows:
  - a. Preliminary Analysis  
The research started from observations at SMK Negeri 1 Ranah Ampek Hulu Tapan, based on observations the researchers found a problem, namely that the learning media used was only printed books.
  - b. Needs Analysis  
Based on the results of teacher and student interviews, information was obtained that all students had *Android* -based *smartphones* but there was no *Android- based learning media* . Therefore, learning media is needed to attract students' interest in learning in order to increase understanding of learning material.
  - c. Analysis of Student Characteristics  
This analysis was carried out to determine the characteristics of students in participating in object-oriented programming learning
  - d. Curriculum Analysis  
Curriculum analysis was carried out by analyzing KI/KD in object-oriented programming subjects in class XI RPL. This is done to determine the KI/KD that will be developed.
2. Design, at this stage verification is carried out to results or achievement Which desired (learning objectives ), and determining approach or strategy Which used.
3. Development, at this stage what is done is: develop , make And verify source Study, as well as development material And supporter Which required.
4. Implementation, at this stage prepare environment Study And carry out learning with involve student.
5. Evaluation, at this stage carry out an evaluation quality whole product And process teaching.(Hidayat, 2021)



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The instrument used in this research is a questionnaire. There are two types of questionnaires, namely a questionnaire on the validity of learning materials and media and a questionnaire on the practicality of learning media. Before the questionnaire is distributed to respondents, a questionnaire validation process is first carried out so that the questionnaire that will be used to collect data is truly valid. The material validity questionnaire consists of 2 aspects, namely 1) achievement of learning objectives which contains 7 questions and 2) suitability of the curriculum containing 5 question items. And the learning media validity questionnaire consists of 3 aspects, namely 1) ease of use which contains 5 questions, 2) attractiveness which contains 5 questions and 3) language and readability which contains 4 questions. This practicality questionnaire consists of 2 types, namely teacher practicality consisting of 10 questions and student practicality consisting of 15 questions. All questionnaires are arranged based on a Likert scale, namely 1 to 4 with categories 1 = Disagree, 2 = Somewhat Agree, 3 = Agree and 4 = Strongly Agree.

## FINDING AND DISCUSSION

Study **This development produces Android** -based learning media products on the concept of encapsulation and inheritance in object-oriented programming subjects. This research uses a *Research and Development (R&D)* approach using the ADDIE development model. This model consists of 5 steps, namely: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. On stage analysis This analysis is carried out need And problem material, media learning, condition student learning , And competence base Which used on moment designing media learning use Android based. By special, discussion This will concentrate on method teaching which used in class XI RPL.

Based on the problems faced by class *Android*- based which can make it easier for students in the learning process. At the design stage, learning media are designed according to basic competencies in the appropriate order of learning indicators through storyboards. After the storyboard is complete, it continues with the learning media development stage. Figures 1 to 8 show the development sequence.

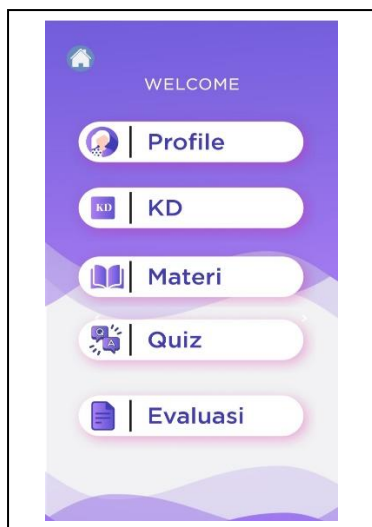


Figure 2. Main Menu Display



Figure 3. Profile Menu Display



Figure 4. Basic Competency Display

Based on Figure 2, it can be explained that the learning media design consists of a profile menu, basic competencies, materials, quizzes and evaluation. Figure 3 explains the profile of learning media creators and Figure 4 explains the core competencies of the concepts of encapsulation and inheritance.

# Development of Android- Based Learning Media in Object-Oriented Programming Subjects in Vocational High School Case Study: SMKN 1 Ranah Ampek Hulu Tapan

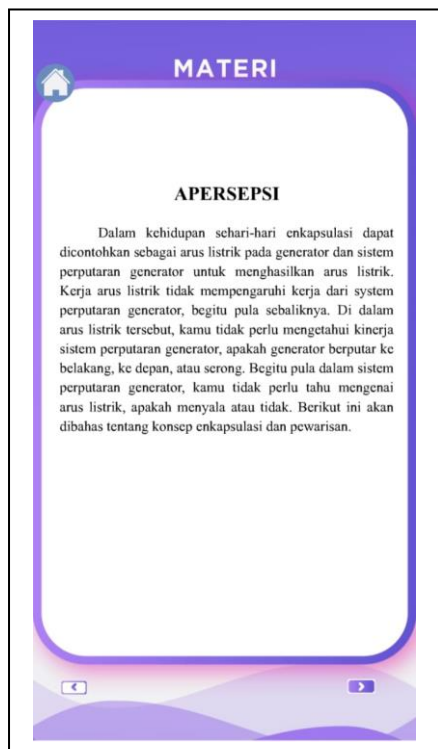


Figure 5. Apperception Material Display

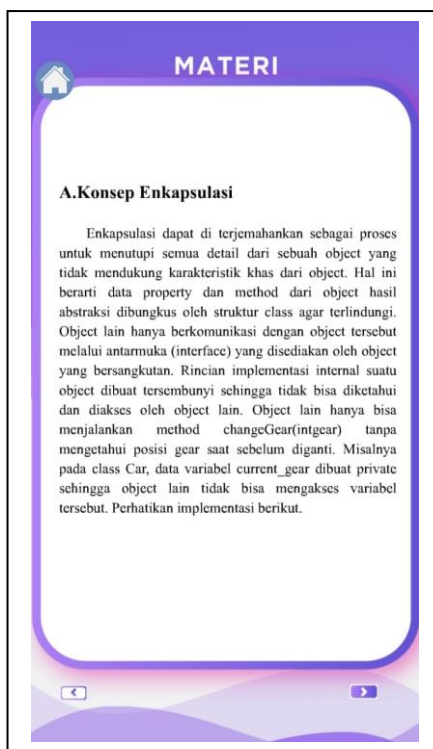


Figure 6. Encapsulation Material Display

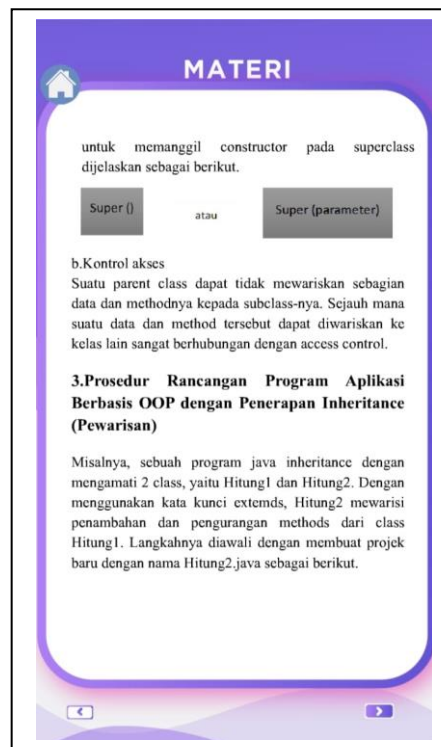


Figure 7. Inheritance Display

Figure 5 explains the content of the material, namely Apperception, Figure 6 explains the material on the concept of Encapsulation and Figure 7 explains the procedure for implementing inheritance.



Figure 8. Guide View

Based on Figure 8, it can be explained that the display contains a guide for taking the quiz, so that students do the quiz according to the instructions and avoid mistakes.

The learning media that has been developed then needs to be validated by media experts and material experts. Validation of learning media carried out by media experts aims to determine the suitability of the product as a learning media and as a basis for improving and improving the quality of learning media . Validation is carried out by showing the media created and filling out a questionnaire containing 14 questions with 3 assessment aspects, namely ease of use, attractiveness of appearance, language and readability. The results of media expert validation can be seen in table 1.

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**Table 1. Media Validity Results**

o	Research Aspect	Media Validator			Category
		V1	V2	V3	
1	User convenience	80	100	100	Valid
2	Attractive appearance	70	90	65	Valid
3	Language and readability	93.75	100	87.50	Valid
Average		87.36 %			Valid

Based on table 1, it can be explained that the results of the assessment by 3 learning media experts obtained an average score of 87.36%, meaning that the learning media created was declared "Valid". The basis for declaring valid is if the value is (>66) and invalid is the value (<=66).

Expert validation results material aim For know opinion about appropriateness material from learning media Which generated. Validation material Also done with show the learning media created and submit the questionnaire to validator. This questionnaire consists of: from 13 questions \_ grouped become two aspects, namely achievement of objectives and suitability of the curriculum. And the results of the material expert validation can be seen in table 2.

**Table 2. Material Validity Results**

o	Research Aspect	Material Validator			Category
		V1	V2	V3	
1	Goal achievement	87.5	93.8	78.1	Valid
2	Curriculum suitability	90	90	90	Valid
Average		88.23 %			Valid

Based on table 2, it can be explained that the results of the assessment by 3 material experts obtained an average score of 88.23%, meaning that the learning media created was declared "Valid". The basis for declaring valid is if the value is (>66) and invalid is the value (<=66).

After the learning media is declared valid, a practicality test is then carried out using a questionnaire by the teacher object-oriented programming subjects for know is media learning based *android* this is really practical in learning. Questionnaire This consists of 4 aspects of assessment, namely material content, appearance, language and convenience. The number of questions/statements is 10 and the practicality test results are available seen on table 3.

**Table 3. Teacher Practicality**

No	Assessment Aspects	%	Category
1.	Material Contents	75.00	<b>Practical</b>
2.	Appearance	96.67	
3.	Language	87.50	
4.	User Ease	100.00	
Average		88.54	

Based on table 3, it can be explained that the results of the subject teachers' assessment obtained an average score of 88.54%, meaning that the learning media created was declared "Practical". The basis for declaring practical is if the value is (>66) and impractical is the value (<=66).

Next, a practicality test is carried out by 28 students taking object-oriented programming courses for know is media learning based *android* This practical or not . Questionnaire This consists of 4 aspects of assessment, namely the content of student interests, appearance, language and student activity. The number of questions/statements is 10 and the practicality test results are available seen on table 4.

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Table 4. Student Practicality

No	Assessment Aspects	%	Category
1.	Student interests	83.33	<b>Practical</b>
2.	Appearance	82.86	
3.	Language	78.57	
4.	Student activity	88.21	
Average		83.24	

Based on table 4, it can be explained that the assessment results of the 28 students who took the subject obtained an average score of 83.24%, meaning that the learning media created was declared "Practical". The basis for declaring practical is if the value is (>66) and impractical is the value (<=66).

## CONCLUSION

Based on research results and discussions on the development of learning media *Android* based on object-oriented programming material at SMK Negeri 1 Ranah Ampek Hulu Tapan. It can be concluded that the creation of this learning media uses *Adobe Animate* application *software* and has been tested for its level of validity and practicality. The media validity test was carried out by 3 validators and the material validity test was carried out by 3 people. And the media validity test results obtained an average of 87.36% in the Valid category. The material validity test results were 88.23% in the Valid category. Thus it can be concluded that this learning media is declared very valid.

*Android*- based interactive learning media from teacher practicality data was 88.54% in the practical category. Meanwhile, the response from 28 students was 83.24% in the practical category. Thus, it can be concluded that the response of teachers and students to *Android-based learning media* is practical, so it is suitable for use in the learning process in class XI RPL at SMKN 1 Ranah Ampek Hulu Tapan.

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## The Effect of Training Model and Arm Muscle Strength on Arm Power in Judo Sport



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**ABSTRACT:** The purpose of this study was to determine the effect of training models and arm muscle strength on arm power judo sports in Bandar Lampung City in order to determine whether there is an effect of training models and arm muscle strength on arm power in athletes. The type of research is factorial 2 x 2. The sample used was judo athletes in Bandar Lampung City totalling 50 athletes. The sampling technique used was purposive sampling. The instrument used was the Two Medicine Ball Put test. Data analysis techniques include descriptive analysis, prerequisite tests (normality and homogeneity tests), hypothesis testing using paired sample tests and independent sample tests. The data analysis technique used in this study using SPSS 20 is by using two-way ANOVA (two-way ANOVA). The results showed (1) There was a significant difference in influence between elastic training of Uchikomi tyres and push ups on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.009 < 0.05$ . The Uchikomi elastic tyre training group was better than the push up group with an average posttest difference of 0.37 metres. (2) There is a significant difference between athletes with high and low arm muscle strength on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.003 < 0.05$ . Athletes with high arm muscle strength are better than athletes with low arm muscle strength with a posttest average difference of 0.44 metres. (3) There is a significant interaction between Uchikomi tyre elastic training and push ups and arm muscle strength (high and low) on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.002 < 0.05$ . The results showed that the Uchikomi tyre elastic training group was a more effective method used for athletes with high arm muscle strength and the push up group was more effective for athletes with low arm muscle strength.

**KEYWORDS:** intensive interval, extensive interval,  $VO_2$  Max

### INTRODUCTION

The sport of judo is a sport of slamming or removing an opponent's balance by using slamming techniques (Lampe et al., 2022). Judo sport is also inseparable from physical condition, where physicality is the basis for an athlete to carry out sports activities. Physical condition is the ability of a person to deal with the demands of physical sports activities optimally. There are various physical components, namely: strength, speed, agility, balance, flexibility, endurance, and coordination. Judo sport recognises two kinds of training, namely Kata and Randori. Kata is a continuous system that includes basic techniques such as slams, locks, chokes, breaks and attacks dangerous body parts. While Randori is a free exercise on everything taught through kata training that is practised in the form of attack and defence (Callan & Bountakis, 2022).

Judo athletes rely heavily on strength and conditioning to ensure success. Judo coaches should be aware of this, and should work closely with strength and conditioning coaches to develop appropriate strength and conditioning programmes for their athletes. Strength for Judo is necessary because judo is a body contact sport that uses strength as one of the components to defeat an opponent. While a judo player must perform movements such as throwing, resisting the opponent's strength during a match, or slamming the opponent, a judo player must also perform movements such as throwing (Lubis & Pambudi, 2021). Uchikomi is a technical exercise that is performed repeatedly or continuously. The advantages of uchikomi using bicycle tyre rubber are: (1) Because bicycle tyres are made of rubber so that when doing uchikomi the rubber works like a spring that is able to pull back when doing uchikomi, (2) Uchikomi with bicycle tyre rubber trains physical components that combine two physical components at once, namely strength and speed or often referred to as power, (3) Rubber uchikomi can be done independently, (4) From an economic point of view, rubber uchikomi is easy to buy because the price is not too expensive (Suwarli, 2016).



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In previous studies to determine the difference in influence between rubber uchikomi and road uchikomi training on judo slamming results. Previous research reinforced that uchikomi using rubber serves to train timing and speed when slamming because timing and speed are needed by every judo player. From using this uchikomi helps athletes train strength and speed. And previous research states that arm power in judo athletes is very necessary, not only in judo but in all sports is very important. Power is one of the influences on the results of judo athletes' slams. Therefore, this study examines the effect of training models and arm muscle strength on arm power in judo sports in Bandar Lampung City in order to determine whether there is an effect of training models and arm muscle strength on arm power in athletes.

### METHODS

This type of research is an experiment using a 2 x 2 factorial research design. This experimental research uses two groups that will be given different treatments, namely elastic tyre training and push ups seen from the athletes' high and low muscle strength abilities. The population in this study were judo athletes in Bandar Lampung City totalling 50 athletes. The sampling technique used was purposive sampling, totalling 38 athletes. Furthermore, from each existing data, it will be divided into two groups with ordinal pairing and obtained 5 athletes each who have high muscle strength are given treatment using elastic tyre and push up exercises, while the low muscle strength group is given treatment using elastic tyre and push up exercises.

The instrument used, namely the Two Medicine Ball Put test. The instrument used in this study is to use a tool, namely a test. The arm power test using medicine-ball has been more than thirty years and is still often used for tests to assess upper body power. The test technique is to obtain data related to arm and shoulder muscle power, namely by using the Two-Hand Medicine Ball-put test.

The data analysis technique used in this study using SPSS 20 is by using two-way ANOVA (two-way ANOVA) at a significance level of 0.05. Previously, prerequisite tests were carried out as (1) normality test and (2) homogeneity test.

### RESULTS

The implementation of the treatment lasted for 18 meetings with a frequency of 3 times a week. Arm power pretest and posttest data are presented in Table 1 as follows.

**Table 1. Pretest and Posttest Data of Arm Power**

No	High Arm Muscle Strength					
	Uchikomi Tyre Elastic (A1B1)			Push Up (A2B1)		
	Pretest	Posttest	Difference	Pretest	Posttest	Difference
1	4.64	5.36	0.72	4.13	4.60	0.47
2	4.08	5.07	0.99	4.08	4.24	0.16
3	3.62	5.25	1.63	3.51	3.95	0.44
4	3.36	4.85	1.49	3.42	4.06	0.64
5	3.29	4.66	1.37	3.02	3.42	0.40
<b>Mean</b>	<b>3,80</b>	<b>5,04</b>	<b>1,24</b>	<b>3,63</b>	<b>4,05</b>	<b>0,42</b>
No	Low Arm Muscle Strength					
	Elastis Ban Uchikomi (A1B2)			Push Up (A2B2)		
	Pretest	Posttest	Difference	Pretest	Posttest	Difference
1	3.19	3.25	0.06	3.15	3.22	0.07
2	2.90	3.27	0.37	2.98	3.39	0.41
3	2.55	3.02	0.47	2.46	2.86	0.40
4	2.17	2.66	0.49	2.29	3.25	0.96
5	1.99	2.35	0.36	1.76	2.05	0.29
<b>Mean</b>	<b>2,56</b>	<b>2,91</b>	<b>0,35</b>	<b>2,53</b>	<b>2,95</b>	<b>0,43</b>

Based on Table 1 above, it shows that the arm power of the A1B1 group averaged a pretest of 3.80 metres and increased at the posttest of 5.04 metres, the A2B1 group averaged a pretest of 3.63 metres and increased at the posttest of 4.05 metres, the A1B2 group averaged a pretest of 2.56 metres and increased at the posttest of 2.91 metres, the A2B2 group averaged a pretest of 2.53 metres and increased at the posttest of 2.95 metres.



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The data normality test uses the Shapiro-Wilk method with a significance level of 0.05. A summary of the normality test results is presented in Table 2 as follows:

**Table 2. Normality Test Analysis Results**

Group	Shapiro-Wilk		
	Statistic	df	Sig.
Pretest A1B1	0,903	5	0,428
Posttest A1B1	0,963	5	0,826
Pretest A2B1	0,911	5	0,475
Posttest A2B1	0,979	5	0,929
Pretest A1B2	0,958	5	0,795
Posttest A1B2	0,897	5	0,395
Pretest A2B2	0,957	5	0,787
Posttest A2B2	0,826	5	0,129

Based on the statistical analysis of the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, it shows that all pretest and posttest arm power data obtained  $p\text{-value} > 0.05$ , which means that the data is normally distributed. Homogeneity test using Levene Test. The results of the homogeneity test are presented in Table 3 as follows.

**Table 3. Results of Homogeneity Test Analysis**

F	df1	df2	Sig,
1,721	3	16	0,203

Based on the statistical analysis of the homogeneity test that has been carried out using the Levene Test in Table 3 above. The results of the homogeneity test calculation obtained a  $p\text{-value}$  of  $0.203 \geq 0.05$ . This means that the data group has a homogeneous variant. Thus the population has a similar variant or homogeneity.

Hypothesis testing was conducted based on the results of data analysis and interpretation of two-way ANOVA analysis. The results of hypothesis testing are presented in Table 4:

**Table 4. Results of two-way ANOVA Analysis**

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Exercise Method	0,688	1	0,688	8,926	0,009
Arm muscle strength	0,981	1	,981	12,727	0,003
Exercise*Arm muscle strength	,999	1	0,999	12,958	0,002

From the ANOVA test results in Table 4 above, it can be seen that the F-value is 8.926 and the p-value is  $0.009 < 0.05$ , meaning that  $H_0$  is rejected. Thus there is a significant difference in influence. This means that the research hypothesis which states that "There is a significant difference in influence between Uchikomi elastic tyre training and push ups on arm power of judo athletes in Bandar Lampung City", is accepted. Based on the results of the analysis, it turns out that the training group using Uchikomi elastic tyres is better than the push up group with an average posttest difference of 0.37 meters.

From the ANOVA test results in Table 4 above, it can be seen that the F-value is 12.727 and the p-value is  $0.003 < 0.05$ , meaning  $H_0$  is rejected. Based on this, it means that there is a significant difference in influence. This means that the research hypothesis which states that "There is a significant difference in influence between athletes with high and low arm muscle strength on arm power judo athletes in Bandar Lampung City", is accepted. Based on the results of the analysis it turns out that athletes with high arm muscle strength are better than athletes with low arm muscle strength with an average posttest difference of 0.44 metres.

From the ANOVA test results in Table 4 above, it can be seen that the F-value is 12.958 and the p-value is  $0.002 < 0.05$ , meaning  $H_0$  is rejected. Based on this, the hypothesis stating "There is a significant interaction between Uchikomi tyre elastic training and push ups and arm muscle strength (high and low) on arm power of judo athletes in Bandar Lampung City", is accepted.

The graph of the results of the interaction test between elastic tyre Uchikomi and push ups and arm muscle strength (high and low) on arm power of judo athletes in Bandar Lampung City can be seen in Figure 1 as follows.

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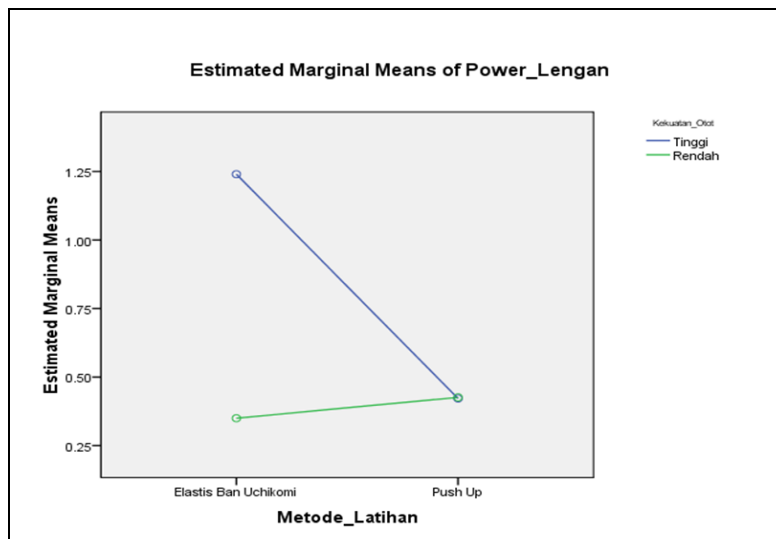


Figure 1. Diagram of Interaction between Uchikomi Tyre Elastic and Push Up and Arm Muscle Strength (High and Low) on Arm Power

## DISCUSSION

### Difference in Effect between Uchikomi Tyre Elastic and Push Up on Arm Power

Based on hypothesis testing, it is known that there is a significant difference in effect between Uchikomi tyre elastic training and push ups on arm power. Based on the results of the analysis it turns out that the Uchikomi tyre elastic exercise group is better than the push up group on arm power. These results are reinforced by several studies including (Yoon et al., 2017) that the use of elastic bands provides a significant improvement in the level of cognitive function, physical function, and muscle strength. Research results (Spracklin et al., 2017) by placing a circular resistance band around the thighs can be used as a training strategy to increase hip muscle activation during free barbell back squats using moderate to heavy loads without negatively affecting performance.

A meta-analysis study conducted by (Lopes et al., 2019) showed that training using elastic bands had similar muscle strength enhancement effects as conventional resistance training using weight machines and dumbbells. (Guillot et al., 2019) proved that elastic band training significantly improved sit-and-reach (29.16% increase,  $p = 0.01$ ) as well as side split stretch performance (2.31% increase,  $p < 0.001$ ). Exercise using elastic bands will improve neuromuscular function and can also cause post-activation potentiation, which is a temporary increase in muscle work that is the result of a previous contraction (Low et al., 2019).

Exercises using elastic bands provide resistance to muscle movement. The level of resistance depends on the stretching properties of the band material. Today, elastic bands are used for physical therapy and rehabilitation to improve the functional capacity of individuals, for chronic diseases and to develop the functional capacity of athletes. It is preferable to provide the opportunity to set individual strength and traction ratios. Elastic bands can be used to strengthen specific muscle groups, and also affect flexibility and balance (Oh, 2021). The benefits of elastic bands have been clearly proven after use and have a fairly high level of safety if done under the supervision of a trainer (Nebahatqoru et al., 2021).

Uchikomi is an exercise that incorporates or familiarises the movement of one of the judo slamming techniques to be performed repeatedly. Uchikomi is an exercise that incorporates or familiarises the movement of one of the techniques, to be performed repeatedly (Andalas & Purwanto, 2019). Uchikomi training is the practice of incorporating a technique or familiarising the movement of one technique repeatedly. Uchikomi has variations such as: uchikomi in place, uchikomi walk. Uchikomi is very necessary in judo because it is to get used to pulling (pulling) on the opponent to lose the opponent's balance in order to give us points. There are many variations of uchikomi training, for example shadow uchikomi, rubber tyre uchikomi and paired uchikomi (Andalas & Purwanto, 2019). So the uchikomi tyre elastic helps in the work that causes the pull, and using the uchikomi tyre elastic trains two components such as technical and physical training. In the research, uchikomi tyre elastic is very good for increasing hand power and also increasing the speed of technical movements, increasing leg power and also increasing grip and also flexing joints.

### Difference in Effect between Athletes with High and Low Arm Muscle Strength on Arm Power

The results of the analysis show that there is a significant difference in influence between athletes with high and low arm muscle strength on arm power. Athletes with high arm muscle strength are better than athletes with low arm muscle strength. These results indicate that a person's power is influenced by one of them by the strength of the leg muscles. Strength and speed are the

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main components in the formation of power, the higher the strength and speed possessed by a person, the more directly proportional to the power produced. Explosive power is the ability to direct force quickly in a short time to give the best momentum to the body or object in an explosive movement that fully achieves the desired goal. Opinion (Chen et al., 2018) that explosive power is the product of muscle strength and speed. Improving muscle strength is the basic condition for improving explosive power.

Strength is the ability of a muscle to contract in order to generate stress against a resistance (Vicencs-Bordas et al., 2018). Physiologically, muscle strength is directly proportional to the volume / size of the muscle, the greater the volume of the muscle, the stronger the contraction produced to perform a movement. The movements produced are the result of activation of the motor unit in the muscle. A motor unit is one motor neuron with all the muscle fibres it innervates. The number of muscle fibres per motor unit and the number of motor units per muscle vary. Rough and forceful movements are produced by 1500-2000 muscle fibres. Thus, the more motor units that are recruited, the stronger the muscle contraction, so the stronger the movement produced.

### Interaction between Uchikomi Tyre Elastics and Push Up and Arm Muscle Strength (High and Low) on Arm Power

Based on the results that have been stated in the results of this study, there is a significant interaction between Uchikomi tyre elastic training and push ups and arm muscle strength (high and low) on arm power. The results showed that the Uchikomi tyre elastic training group was a more effective method used for athletes with high arm muscle strength and the push up group was more effective for athletes with low arm muscle strength. Utilisation of elastic band (rubber) aids during uchikomi training is useful for developing hand grip strength, flexing joints, increasing movement speed and power in the limbs, and strengthening judoka's VO2Max endurance (Sugiharto) In addition to familiarising movement techniques, uchikomi training aims to develop judoka's physical fitness by performing repetitive movements (Posrikaew et al., 2018; Sogabe et al., 2015). The road uchikomi exercise has a better effect in improving the results of judo slams, so the coach or sports coach should choose the road uchikomi exercise in an effort to improve the results of judo slams. The advantages of uchikomi using bicycle tyre rubber are (1) Because bicycle tyres are made of rubber so that when doing uchikomi the rubber works like a spring that is able to pull back when doing uchikomi, (2) Uchikomi with bicycle tyre rubber trains physical components that combine two physical components at once, namely strength and speed or often referred to as power, (3) Rubber uchikomi can be done independently, (4) From an economic point of view, rubber uchikomi is easy to buy because the price is not too expensive (Suwarli, 2016). Therefore, this study shows that uchikomi tyre elastic is very useful for improving both physical ability and technical ability.

## CONCLUSION

Based on the results of the research and the results of data analysis that has been done, the following conclusions are obtained. (1) There is a significant difference in effect between Uchikomi tyre elastic training and push ups on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.009 < 0.05$ . The Uchikomi elastic tyre training group was better than the push up group with an average posttest difference of 0.37 metres. (2) There is a significant difference between athletes with high and low arm muscle strength on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.003 < 0.05$ . Athletes with high arm muscle strength are better than athletes with low arm muscle strength with an average posttest difference of 0.44 metres. (3) There is a significant interaction between Uchikomi tyre elastic training and push ups and arm muscle strength (high and low) on arm power of judo athletes in Bandar Lampung City, with a p-value of  $0.002 < 0.05$ . The results showed that the Uchikomi tyre elastic training group was a more effective method used for athletes with high arm muscle strength and the push up group was more effective for athletes with low arm muscle strength.

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## A Phenomenological Study of the Under-Skilled Learners on Reading and Numeracy through Distance Learning: Case of Elementary Schools



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**ABSTRACT:** Numerous challenges have arisen during this time, including issues with connectivity and access to online materials. Educational psychology can provide valuable insights to sustain education during periods of school closures, such as those experienced during the COVID-19 pandemic. However, the effectiveness of online learning has been a topic of discussion, as face-to-face instruction cannot be replicated entirely online.

Tackling poverty in education at the elementary level requires a comprehensive approach that addresses the social, economic, and educational needs of disadvantaged students and their families. Students from these backgrounds may face academic struggles and find it difficult to keep pace with their peers.

The current study, which is descriptive in nature, suggests a significant decline in the average competency scores of fifth-grade students in reading and numeracy. These findings supplement previous research on the development of individual competency, which revealed a greater reduction in competency levels during the initial wave of the pandemic

**KEYWORDS:** Learning Competencies, COVID - 19, Reading Speed, Numeracy

### INTRODUCTION

In developing countries, education is a crucial social service provided by the government, and it plays a key role in supporting sustainable economic growth over time and in decreasing poverty levels. The role of education in transmitting culture across generations is essential, and its quality and effectiveness are critical in fulfilling this function. In recognition of this vital role, the government is consistently making significant efforts to ensure that quality education is available to everyone.

In today's generation, the emergence of COVID-19 has caused significant changes in people's lives, impacting various aspects of human life. One of these is the education sector, which has been greatly affected due to government regulations on social distancing and gatherings to prevent the spread of the virus. As a result, online learning has become prevalent. The effects of COVID-19 have been widespread, affecting students, teachers, and educational institutions worldwide (Mailizar et al., 2020).

The conduct of online classes had been problematic for many students. Numerous issues, problems, and challenges have emerged like problems on connectivity and availability of online materials (Agapito et al., 2021). Moreover, the effectiveness of online learning had surfaced as an issue because face-to-face instruction could never be parallel to online learning. But one of the increasing concerns today was the competencies of the students towards online learning as well as the issues related to curriculum design, assessment, and the availability of appropriate learning materials and resources.

Problems that arise in the learning process refers to the lack of basic resources and necessities that hinder the ability of students to learn effectively in public elementary school as observed by the teachers. These resources may include adequate nutrition, access to medical care, a safe and stable home environment, and appropriate learning materials such as textbooks, technology, and educational tools. Students who experience poverty in these areas may struggle academically and face challenges in keeping up with their peers. Addressing elementary poverty in education requires a multi-faceted approach that addresses the social, economic, and educational needs of disadvantaged students and their families.

In the ever-evolving landscape of education, the advent of distance learning has reshaped the traditional classroom paradigm, providing unprecedented opportunities for accessibility and inclusivity. As we navigate this digital frontier, it becomes imperative to shine a spotlight on those learners who may face unique challenges in acquiring foundational skills, specifically in

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reading and numeracy. This phenomenological study embarks on a journey to delve into the lived experiences of under-skilled learners within the context of elementary education, examining their encounters with distance learning (Huth, 2022).

The cornerstone of a student's academic career is their elementary education, and future academic success is built on their ability to read and calculate. But not every student sets out on this adventure with the same set of abilities. By elevating the voices of less experienced students, this research aims to highlight the complex difficulties that these students face when learning remotely. Through the use of a phenomenological approach, this study seeks to translate the essence of the experiences of the under-skilled learners, offering a comprehensive understanding of their challenges, success, and how distance learning affected their educational paths. The researchers attempted to go beyond simple statistical analysis by exploring the subjective domain of these learners' perceptions, feelings, and lived realities through the lens of phenomenology.

The elementary school setting serves as the backdrop for our exploration, recognizing the pivotal role it plays in shaping the educational narrative of each learner. As we navigate the uncharted waters of distance learning, this research aimed to determine the rise of under-skilled phenomenon on reading speed and numeracy of public school fifth graders in District 2, Plaridel Elementary Schools. This study hopes to contribute valuable insights to the ongoing debate about distance learning and its implications for under-skilled learners in elementary schools by addressing these issues. The researcher anticipate to foster a more inclusive and equitable educational landscape for all by meticulously examining individual narratives and identifying potential avenues for intervention and support.

## Problem of the Study

This research aimed to determine the rise of under-skilled phenomenon on reading speed and numeracy of public school fifth graders in District 2, Plaridel Elementary Schools. *Specifically, it aims to answer the following questions.*

1. How are the competencies of the public school fifth graders be measured in terms of:
  - 1.1 Reading Speed; and
  - 1.2 Numeracy
2. What are the observations and perceptions of the public school elementary teachers on the distance learning approach?
3. What intervention program may be developed based on the findings of the study?

## METHODOLOGY

### Research Design

This study used a descriptive-normative method in order to determine the level of competencies of the fifth graders in public elementary schools on reading and numeracy. A descriptive-normative survey is a research technique that merges two distinct methods: gathering information to depict the objective of the study in its current or past state, as well as evaluating the object to recognize possible ways to enhance it. Descriptive research can be helpful in identifying intervention programs that can be used in normative research to suggest improvements. Through the course of evaluating and recognizing the level of competencies of the elementary students, one may acquire a more comprehensive understanding of the objectives of study, which can help identify areas for improvement and facilitate the development of more effective strategies.

### Research Locale

The observational research study was conducted in the District 2 of Plaridel comprising the following public elementary schools, to wit: Bintog, Parulan, San Jose, Bulihan, and Liciada during the school year 2022 – 2023.

### Respondents of the Study

The participants of the study involved selected teachers from public elementary school of District 2, Plaridel Bulacan. The below table 1 shows the frequency distribution of the teachers who have participated in the afore said study:

**Table 1. Gender Distribution of Public Elementary Teachers of Dist. 2, Plaridel, Bulacan**

Elementary School	Frequency			
	Male	%	Female	%
Bintog	2	10	17	17.2
Parulan	4	20	22	22.2
San Jose	5	25	17	17.2



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Bulihan	2	10	15	15.2
Liciada	7	35	28	28.2
<b>Total</b>	<b>20</b>	<b>100</b>	<b>99</b>	<b>100</b>

### Research Instrument

The evaluation tool used in the study was a self constructed questionnaire that assessed the level of reading and numeracy of the elementary students. The rubrics used were categorized as advanced, proficient, developing, emerging and beginning. The description of which can be seen in Table 2.

### RESULTS AND DISCUSSION

During the month of March 2020, the closure of schools for months due to the first wave of the COVID-19 pandemic caused a disruption in regular education in the Philippines. This study aimed to determine the comprehension of fifth grader student competencies in public elementary school by examining their level of competencies in reading and numeracy in District 2, Plaridel, Bulacan.

**Table 2. Fifth Grade Assessment on their Competencies on Reading and Numeracy in Dist. 2, Plaridel, Bulacan**

Descriptive	Rubrics on Reading	f	%	Rubrics on Numeracy	f	%
ADVANCED	I can identify details from the text. I can give insightful evidence to support my conclusions and to make inferences. I can interpret unfamiliar words based on context	3	0.7	Students demonstrate advanced ability to view the situation mathematically. Approach representation is effective and is easy to follow. Reasoning and evidence is clear and well presented.	2	0.5
PROFICIENT	I can identify the main idea and details about the text. I can give evidence from the text to support conclusions. My ability to make inferences is limited as I can understand familiar words, but I have trouble interpreting new words.	27	7.0	Students demonstrate proficient ability to view the situation mathematically. Approach or representation is sensible and generally can be followed. Reasoning or evidence contains minor inconsistencies.	34	8.9
DEVELOPING	I can identify the main idea and a few details about the text. I struggle to provide evidence and make inferences. I can understand familiar words when they are used in familiar contexts.	82	21.4	Students demonstrate developing ability to view the situation mathematically. Approach or representation is difficult to follow. Reasoning or evidence is lacking to some degree.	84	22
EMERGING	My ability to interpret individual words significantly limits my understanding of the text. I can identify the main idea of the text, but I cannot give details or textual evidence to support conclusions about the text	123	32.2	Students demonstrate basic ability to view the situation mathematically. Approach or representation is ineffective. Reasoning or evidence is absent.	165	43
BEGINNING	I cannot understand the words in the text well enough to be able to identify the main idea or any details about the text.	148	38.7	Ability to view the situation on a very limited scope. Approach or representation is very ineffective. Reasoning and evidence is nil.	98	25.5
Total		N=383	100		N=383	100

The reading and numerical abilities of fifth-grade students who were assessed in 2020 were marginally weak as seen from Table 2. The observed variations among the groups are consistent with anticipated outcomes resulting from the distance learning that arises as the teaching modality during the pandemic times, and higher rates of absenteeism during the face to face (F2F) classes (Sosu & Klein, 2021). These observations were expected to impede students' ability to learn and hinder their progress, likely due to reduced time spent on educational activities, fewer opportunities for peer interactions, and limited direct instruction and feedback from teachers (Andrew et al., 2020; Grewenig et al., 2021).

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Observations and perceptions of the public elementary teachers were collated and summarized as follows: Educational psychology can provide useful suggestions for sustaining education during distance or online learning, such as during the COVID-19 pandemic. These recommendations may involve essential steps but may also require significant financial investments. Huber and Helm (2020) suggest that digital infrastructure at numerous schools in the Philippines could benefit from enhancement to facilitate distance learning and digitally enhanced education overall. Likewise, the utilization of formative online assessments appears to be a promising strategy for keeping students engaged while schools are closed. Meeter (2021) and Spitzer & Musslick (2020) found through empirical research conducted during the initial wave of the COVID-19 pandemic that formative assessments resulted in improved performance compared to traditional classes in previous years, especially for older students. Nevertheless, the precise causal relationships are uncertain due to the self-selection of samples and interventions serving as both the assessment of competencies and the outcome, leading to potential methodological effects. Overall, it is necessary to modify learning and teaching approaches to suit distance learning and prioritize cognitive engagement, student assistance, and classroom administration (Voss & Wittwer, 2020).

Moreover, extensive research has established a comprehensive database of factors that contribute to effective teaching, including the provision of high-quality learning tasks, the provision of effective feedback, and ensuring that students spend adequate time on tasks. The researcher proposes that comparable aspects are equally important in the context of remote education (Muijs, 2021). According to Andrew and colleagues (2020), one of the difficulties faced in distance education is encouraging students to stay engaged and providing them with feedback while schools are closed to F2F classes. To ensure successful remote teaching and learning, schools need to be equipped with advanced technology. Effective school management can support quality teaching by establishing clear communication channels, dependable digital infrastructure, and resources that can aid students' learning, irrespective of their home environment.

### **CONCLUSION**

In conclusion, the findings of this study reveal a marginal weakness in the reading and numerical abilities of fifth-grade students assessed in 2020, aligning with the anticipated outcomes of distance learning during the pandemic. The observed variations among groups can be attributed to the challenges posed by this teaching modality, coupled with higher rates of absenteeism during face-to-face classes. These challenges, including reduced time for educational activities, limited peer interactions, and constrained direct instruction and feedback from teachers, were expected to impede students' learning progress. The collated observations and perceptions of public elementary teachers underscore the significance of educational psychology in providing valuable suggestions for sustaining education during distance or online learning, particularly in the context of the COVID-19 pandemic. Recommendations, such as enhancing digital infrastructure, utilizing formative online assessments, and modifying learning and teaching approaches to prioritize cognitive engagement and student assistance, emerge as essential strategies for addressing the challenges posed by distance learning.

Furthermore, the study highlights the importance of factors contributing to effective teaching, such as providing high-quality learning tasks, effective feedback, and ensuring sufficient time on tasks. The researchers advocate for the relevance of these factors in the context of remote education, emphasizing the need for advanced technology, clear communication channels, and dependable digital infrastructure to support successful remote teaching and learning. Ultimately, the comprehensive database of factors contributing to effective teaching, coupled with a proactive approach to adapting learning and teaching approaches to suit distance learning, emerges as critical components in overcoming the challenges posed by the shift to remote education, especially during times of school closures and disruptions like the COVID-19 pandemic.

### **RECOMMENDATION**

The study's findings suggest a marginal weakness in the reading and numerical abilities of fifth-grade students assessed in 2020, echoing the expected outcomes of distance learning during the pandemic. The observed variations among groups can be attributed to challenges associated with this teaching modality, coupled with higher rates of absenteeism during face-to-face classes. These challenges, including reduced time for educational activities, limited peer interactions, and constrained direct instruction and feedback from teachers, were anticipated to impede students' learning progress.

In response to these challenges, several recommendations emerge. First and foremost is the imperative to invest in digital infrastructure to improve the quality and accessibility of distance learning. This encompasses ensuring reliable internet connectivity, providing necessary devices for students, and enhancing the overall technological capabilities of educational institutions. Additionally, the study advocates for the utilization of formative online assessments as a strategy to keep students engaged and monitor their progress during remote learning.

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Furthermore, the findings underscore the need to adapt teaching methods to suit the demands of distance learning, emphasizing cognitive engagement, interactive learning activities, and student assistance to create a more dynamic virtual learning environment. Incorporating insights from educational psychology is recommended to provide support for teachers, students, and parents during distance learning, addressing motivational issues, ensuring effective communication, and fostering a positive learning environment.

Establishing clear communication channels between teachers, students, and parents is crucial for enhancing transparency and understanding in the virtual learning space. Effective school management practices that prioritize the needs of remote learners, including providing resources, professional development opportunities for teachers, and creating a supportive framework for successful distance education, are also recommended.

Additionally, the study emphasizes the importance of promoting equitable access to educational resources for all students, regardless of their home environment. This involves targeted interventions to support disadvantaged students and address the digital divide. Encouraging collaboration between educators, policymakers, and technology experts is highlighted to continually improve and innovate in the realm of distance learning through the sharing of best practices, conducting research, and implementing evidence-based strategies.

Lastly, the study recommends providing comprehensive training programs for teachers to enhance their proficiency in delivering remote education. This training should cover technological tools, pedagogical strategies for online instruction, and methods for maintaining student engagement in virtual environments. The study concludes by advocating for the implementation of a continuous monitoring and evaluation system for distance learning programs to assess their effectiveness regularly. Through these recommendations, educational stakeholders can work towards creating a more resilient and effective educational system capable of navigating challenges posed by disruptions and ensuring continued learning for all students, irrespective of the learning environment.

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## United Nations' Policy on Weapons of Warfare and the Implication on Global Peace and Security



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**ABSTRACT:** Armed conflict is a part of evolution of man and international relations. It is a transitional era which must be conducted in such a manner that would not make a return to peace impossible. The earth's environment is usually battered by the preparation, conduct and consequences of war. According to the World Charter on Nature of 1982, "nature shall be secured against degradation caused by warfare or other hostile activities, and that military activity damaging to nature shall be avoided". Armed warfare (international and non-international) are waged differently across the globe today with a resultant widespread impacts on the members of the society and the environment. Although, armed conflict is inevitable, dedicated sections of this study discussed the concept of warfare, typologies, causes of warfare, categories of weapons of warfare, its effect on the environment and the implication of United Nations' restriction policy on global peace and security. The study probed into existing literatures and consider the related Treaties, Conventions and Protocols set-forth to restrict and prohibit the exploitation of violence and diverse methods of warfare in all armed conflict whether domestic or international.

The study have observed that the activities of combating parties have had negative impact on the environment, civilian objects and animals. Their engagement has led to loss of lives, destruction of public properties, basic social amenities and superfluous injury and unnecessary suffering on non-combatant. Despite United Nation establishing 'rules of engagement' to mitigate the suffering caused by warfare, it is pitiful to note that nations around the world have continued to engage in the deployment of prohibited weapons in warfare. Hence, the study concluded and feature recommendations for all levels of weapon policy apparatus as well as solutions to ensure global peace and stability.

**KEYWORDS:** United Nations, warfare, weapons, peace, security, policy and objects

### INTRODUCTION

In armed conflicts, whether international or national, combating parties usually mirrors each other with respect to deployed military resources and weaponries. However, warfare becomes problematic when adverse party engage with notably imbalanced or excessive means of warfare. It is undoubtedly true that, in armed conflict, combating parties are permitted to choose the means (weapon) of warfare to be deployed, however, this liberty is not without restrictions or prohibitions.<sup>1</sup> The International Humanitarian Law (IHL) imposes restrictions both on the manufacturing and deployment of certain weapons particularly, those that strike civilian objects and combatant indiscriminately or cause extensive damage irreversible and disproportionate to any specific military advantage.<sup>2</sup>

With regard to deployment of warfare weapons, the world is classified broadly into nuclear States and non-nuclear States. The nuclear weapon States (NWS) are those, which have manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.<sup>3</sup> The five states are the United States, the Soviet Union (replaced by Russia), the United Kingdom, France and China. All other non-nuclear weapon States (NNWS) are disregarded and disqualified from developing or owning nuclear weapon.<sup>4</sup> While the NWS have often been able to isolate this Treaty from political issues, it has become increasingly harder

<sup>1</sup> Article 35 Additional Protocol I, 1977

<sup>2</sup> Rules 7-24 Customary International Humanitarian Law

<sup>3</sup> Article IX (3) Non-Proliferation of Nuclear Weapons Treaty, 1968

<sup>4</sup>E.B Firmage, 'The Treaty on the on-Proliferation of Nuclear Weapons' (2017) available at <<https://www.cambridge.org>> Retrieved 1th December, 2023; Center for Arms Control and Non-Proliferation, 'Fact Sheet Nuclear Non-Proliferation Treaty' (2017) available at <<https://www.armscontrolcenter.org>> Retrieved 1th December, 2023

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as international tensions have increased with other NNWS showing interest in acquiring nuclear weapons. This policy, encapsulated in the Treaty, however, connotes inequality among States and thereby poses significant risks for the global non-proliferation regime.<sup>5</sup> It is a paradox that two of the nuclear weapon State, France and China, which also hold, veto power in the Security Council refused to sign the Non-Proliferation of Nuclear Weapons Treaty (NPT). However, China, on its part, stated its willingness to work with the international community to uphold and promote nuclear disarmament. It undertakes not to be the first to use nuclear weapons at any time and under any circumstances and unconditionally commits itself not to use or threaten to use nuclear weapons against non-nuclear State.<sup>6</sup> Despite the existence of several commitments and the ratification of the NPT by member States, it has not deterred the development of nuclear weapons, since it is believed that they will always keep their nuclear capabilities at minimum level required for national security.<sup>7</sup>

Nuclear weapon is one of the weapons of mass destruction. The uncontrolled access to weapons of warfare particularly, weapons of mass destruction have continued to constitute the source of threat to global peace and security.<sup>8</sup> Also worrisome, is the proliferation of nuclear, chemical and biological weapons as well as their means of delivery. The United Nations as the gatekeeper of international peace and security in its determination not to handle with levity the issue of global peace and security has continued since its inception 1945 to take proactive steps through both legal and policy pronouncements to address the issue of insecurity in the global circle.

Although, other States apart from those listed above are signatories to the NPT as Non-Nuclear Weapon State (NNWS) and are disqualified from owning or developing nuclear weapons,<sup>9</sup> it is observed that NNWS such as, Syria have resorted to the development and use of other weapons with the potential capability of mass destruction such as chemical weapon, biological weapon, conventional weapon and environmental weapons.<sup>10</sup> The future implication of these developments is a militarized world. The United Nations, however, has not relented in its effort to achieve a world guaranteed of peace and security. It has taken series of steps among which is the step taken in 2004 vide Resolution 1540 of its 4956<sup>th</sup> meeting of 28 April 2004. The resolution inter-alia was to facilitate an effective response to global threats arising from proliferation of weapons of warfare to security and peace.<sup>11</sup> The kernel of the Resolution is that "all States shall take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical or biological weapons and their means of delivery including by establishing appropriate control over related materials".<sup>12</sup> The Resolution was built on other resolutions from the period of the League of Nations to date with a view of checkmating the senseless arms race. The threat to global peace and security is aggravated daily and this is attributed to the proliferation of weapons of mass destruction.<sup>13</sup> To reduce this threat, it is essential that the disarmament regime must underline the authority and primacy of the NPT<sup>14</sup> and thus, make it applicable to all States. The nuclear weapon States should seriously cooperate with NNWS in working out this universal objective.<sup>15</sup> Hence, it will be anachronistic for the nuclear weapons States to be endowed with the power to own, develop or improve upon their nuclear weapon while other States are deprived of such equal rights.

The notable imbalance between the NWS and NNWS necessitates the need to examine the categories of weapons acceptable in armed conflict whether international or domestic under International Humanitarian Law and its effect on the environment. The

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<sup>5</sup> M.Messmer, 'Why a Stalling Non-Proliferation Treaty is a Wake-Up Call for Global Security' (2023) available at <<https://www.chathamhouse.org>> Retrieved 15<sup>th</sup> December, 2023; M.Messmer, *et.al.*, 'Reducing Nuclear Weapons Risk' (2023) available at <<https://www.chathamhouse.org>> Retrieved 15<sup>th</sup> December, 2023;

<sup>6</sup> S. Xiaobo, 'Upholding the Authority of the Treaty on the Non-Proliferation of Nuclear Weapons, Serving International Security and Development' (2023) available at <<https://www.fmprc.gov.cn>> Retrieved 15<sup>th</sup> December, 2023

<sup>7</sup> For example, China's position on Non-Proliferation Treaty

<sup>8</sup> M.Messmer, (n5) *Ibid*;

<sup>9</sup> Center for Arms Control and Non-Proliferation, (n4) *Op.cit*

<sup>10</sup> D. McElroy, 'UN Accuses Syrian Rebels of Chemical Weapons Use' *The Telegraph*, 6<sup>th</sup> May, 2013 cited in S.E Meulenbelt and M.S Nieuwenhuizen. 'Non State Actors Pursuit of CBRN Weapon: From Motivation to Potential Humanitarian Consequences' (2015) 97 (899) *International Review of the Red Cross*, Pp 831-858

<sup>11</sup> G.H Osthuizen and E Wilmshurst, 'Terrorism and Weapon of Mass Destruction: United Nations Security Council Resolution 1540 (2004) available at <<https://www.chathamhouse.org>> Retrieved 15<sup>th</sup> December, 2023

<sup>12</sup> *Ibid*;

<sup>13</sup> S.J Cimbala, 'Nuclear Proliferation in the Twenty-First Century: Realism, Rationality and Uncertainty' (2017) 1 *Strategic Studies Quarterly*, Pp. 129-146

<sup>14</sup> Statement of the G7 Non-Proliferation Directors Group, G7 Hiroshima Summit, 2023 available at <<https://www.mofa.go.jp>> Retrieved 15<sup>th</sup> December, 2023

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study will also analyze the implication of the United Nations' restriction policy on weapons of warfare on global peace and security, and thereby proffer workable solution that will help to chart the course for sustainable global peace and security.

### 1.0 Research Methodology

Attacks and use of prohibited weapons on unarmed civilians and other violation of international humanitarian law, reflects a growing phenomenon in conflicts around the world. This trend has been the focal point of discussion among committee of State on the floor of the United Nations' Security Council. This issue is regarded as a global crisis, and therefore, falls within the ambit of International Humanitarian Law (IHL). IHL provides set of rules that seeks, for humanitarian reasons, prohibit certain weapons and limit the effect of arm conflict on persons who are not actively participating in hostilities.<sup>16</sup> The IHL which is also known as 'the law of war' comprises primarily of treaties, such as, Non-Proliferation of Nuclear Weapon Treaty (1968), Customary International Humanitarian Law, Hague Convention (1907), Geneva Convention (1949) and the Additional Protocol I (1977). These treaties regulate the conduct of parties in armed conflict (*jus in bello*) including the weapons to be deployed. Therefore, for in-depth contextual analysis, the study will be contingent on these treaties and existing literatures in this area, to examine the influence of UN's policy on means of warfare, and the notable beneficial effect on global peace and security. This methodological approach will assist humanitarian practitioners, policy-makers and engaging States in understanding how and when the treaties applies and what they aim to protect.

### 2.0 United Nations Global Peace and Security Objective

The United Nations Security Council is the organ of the United Nations primarily responsible for international peace and security.<sup>17</sup> The desire to live in peace, and for the nations of the world to unite their strength to maintain peace and security underlies the formation of the United Nations as a successor to the League of Nations in 1945. The United Nations charter, which came into force on 24 October 1945, provides for the purposes and principles of the United Nations.<sup>18</sup> The charter provides succinctly the principles for achieving peace and security, and of interest is that 'All member states shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered'.<sup>19</sup> It further stated, that, all members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations.<sup>20</sup>

The United Nations Security Council is the organ with the primary responsibility for maintaining peace and security.<sup>21</sup> The council consists of fifteen members out of which five are permanent with veto power. The permanent members are the United States, Russia, the United Kingdom, France and China.<sup>22</sup> The other ten members are elected by the general assembly as non-permanent members. The election is guided by the contribution of members to the maintenance of international peace and security and to other purposes of the organization and to equitable distribution. The non-permanent members are elected for a term of two years. The members of the United Nations are bound in advance to carry out the decisions of the Security Council in accordance with the charter.<sup>23</sup>

Each member of the Security Council is vested with one equal vote. However, there is a dichotomy in voting for the purpose of decision-making in procedural matters and other matters that are not procedural. In procedural matters, decisions of the Security Council is made by an affirmative vote of nine members<sup>24</sup> and on other matters, decisions are made by an affirmative vote of nine

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<sup>16</sup> International Committee of the Red Cross, 'What is International Humanitarian Law?' (2022) available at <<https://www.icrc.org>> Retrieved 15<sup>th</sup> December, 2023

<sup>17</sup> H. Nasu, 'The UN Security Council's Responsibility and the Responsibility to Protect' (2011) 15 *Max Planck Yearbook of United Nations Law*, Pp. 377-418; Council of Foreign Relations, 'The UN Security Council' (2023) available at <<https://www.cfr.org>> Retrieved 15<sup>th</sup> December, 2023; Article 1 United Nation Charter, 1945

<sup>18</sup> Article 1 (1) of the United Nations Charter, 1945 - To maintain international peace and security; and to that end: to take effective collective measures for the prevention and removal of threats the peace; and for the suppression of the acts or other breaches of the peace, and to bring about by peaceful means and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peace.

<sup>19</sup> Article 2(3) United Nation Charter, 1945

<sup>20</sup> Article 2(4), *Ibid*.

<sup>21</sup> Article 1, *Ibid*; See also, Article 24, *Ibid*.

<sup>22</sup> Article 23 (1) United Nation Charter, 1945

<sup>23</sup> Article 25, *Ibid*

<sup>24</sup> Article 27, *Ibid*



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members including the concurring votes of the permanent members. In the settlement of local disputes through regional arrangements as indicated by the council, a member of the council involved in the disputes is not entitled to vote.<sup>25</sup>

Members of the United Nations are not allowed to have recourse to the use of force in the first instance. Parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security are to first seek solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or other peaceful means by their own choice.<sup>26</sup> The Security Council may also investigate any dispute or any simulation, which might lead to international friction or give rise to a dispute, in order to determine whether the continuance of the dispute or simulation is likely to endanger the maintenance of international peace and security.<sup>27</sup> The Council is endowed with the power to determine the existence of any threat to the peace, breach of the peace or act of aggression and shall make recommendations or decide what measures to be taken.<sup>28</sup>

### 3.0 Conceptual Overview

It is imperative to put relevant concepts into perspectives for the purpose of clarity and in-depth analysis. This section will discuss the definition and forms of war encountered around the world. Although, warfare and war may be said to be similar and inseparable, however, a careful distinction will be drawn between these terms and the significance of this, is to fill the gaps in some existing literatures where armed conflict (war) and the act of engaging in armed conflict (warfare) was used interchangeably. War is an armed conflict typically fought by a country or group of countries against an opposing country or group with the aim of achieving an objective through the use of force.<sup>29</sup> It is defined as a state of competition or hostility between different people or groups.<sup>30</sup> In times of war, open and armed hostility are usually declared between states or nations.<sup>31</sup> War is a conflict between political group involving hostilities of considerable duration and magnitude.<sup>32</sup> Different authors have defined war in different ways. It has been defined "as a contention between two or more states through their armed forces, for the purpose of overpowering each other and imposing such conditions of peace as the victor pleases"<sup>33</sup>. To Clausewitz, 'war is nothing but a duel on an extensive scale, an act of violence intended to compel our opponent to fulfill our will directed by political motives and morality'.<sup>34</sup> It is an act of violence characterized by destruction.<sup>35</sup> Thus, an armed conflict between one or more member states of a federal states and the federal state itself must be considered as war in international law.

War can take various forms such as civil wars, private or public wars. Thus, the war of secession within the United States of America and between the northern and southern member in 1861 to 1865 was actually a war. Civil war is an internal armed conflict between people of the same nation. It may occur to either retain power and authority and therefore the legitimacy to govern or it may occur to snatch the same from those holding on to it.<sup>36</sup> In Nigeria, for example, is the civil war in Nigeria from 1967 to 1970 between the Federal Government led by the then head of state, General Yakubu Gowon and the Biafra soldiers led by the late colonel Odumegwu Ojukwu<sup>37</sup>. Public war is a war between two nations under the authorities of their respective governments. Private war on the other hand is a war between private persons. It is a war waged without lawful authority. A solemn war is a war that has been formally declared by Congress in which all members of a nation are authorized to commit hostile acts against all members of an opposing nation<sup>38</sup>. Perfect war is a war involving the entire nation and declared by legitimate authority while imperfect war is a war limited in term of places, persons and things and it is declared by a person without authority.

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<sup>25</sup> Article 52 (3), *Ibid*

<sup>26</sup> Article 33 (1), *Ibid*

<sup>27</sup> Article 34, *Ibid*

<sup>28</sup> Article 39, *Ibid*

<sup>29</sup>P. Goodman, 'The 8 Main Reasons for War' (2021) *Maven Media Brands* available at <[www.owlcation.com](http://www.owlcation.com)> Retrieved 6<sup>th</sup> June, 2021

<sup>30</sup> *Ibid*.

<sup>31</sup>B. A Garner, *Black's Law Dictionary* (8<sup>th</sup> edn, Thompson West Publishers, 2004) P.1614

<sup>32</sup> J. Frankel, 'War' (2017) available at <<https://www.britannica.com>> Retrieved 8<sup>th</sup> June, 2021

<sup>33</sup> L. O. Oppenheim, *International Law: A treaties Disputes, War and Neutrality* in H. Lauterpatch (ed), (7<sup>th</sup> edn, Longmans, Green and Co, 1952) 202

<sup>34</sup> J. Lindell, *Clausewitz: War, Peace and Politics* (2009) available at <<https://www.ei-r.info>> Retrieved 6<sup>th</sup> June, 2021

<sup>35</sup> *Ibid*.

<sup>36</sup>E. Gyankosh, 'Unit 6 Types of War: Revolutionary War, Civil War, Guerrilla War, Insurgency and Counter Insurgency, Proxy War and Asymmetrical War and Terrorism' (2008) available at <[www.egyankosh.ac.in](http://www.egyankosh.ac.in)> Retrieved 8<sup>th</sup> June, 2021

<sup>37</sup> The word Biafra refers to the Igbo tribe in Nigeria who formed the five states in the South Eastern geo-political zone.

<sup>38</sup> DMCA, 'Solemn War' (2020) available at <[www.quimbee.com](http://www.quimbee.com)> Retrieved 8<sup>th</sup> June, 2021

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Conversely, warfare is the act of engaging in war or military conflict. Means of warfare are the weapons and the weapon systems by means of which violence is exercised against the enemy by the armed forces of the supplying state to the conflict, and whose use, within the limits justified by military necessity is legitimate in time of war<sup>39</sup>. Warfare is also conflict, especially when vicious and unrelenting between competitors or political rivals.

The concept of peace do not have a definite meaning, however, it could be defined from the perspective of may be an individual is at peace with God, peace with the universe, peace with one's self or peace with others. Peace may be opposed to or an opposite of antagonistic conflict, violence or war. It may refer to an internal state (of mind or nations) or to external relations.<sup>40</sup> Peace is a stress-free state of security and calmness that comes when there's no fighting or war, everything coexisting in perfect harmony and freedom.<sup>41</sup> Peace is also defined as a two-dimensional construct with both objective and subjective measures that must be studied within specific micro to macro contexts.<sup>42</sup> The term "peace" is often equated with harmony and lack of conflict or violence. It is regarded as a state toward which humans should strive.<sup>43</sup> Peace may be positive or negative.<sup>44</sup>

### 4.0 Weapons of Warfare

The United Nations policy on weapons of warfare is basically inequitable and it portends a world where some countries are superior and the others are inferior. The policy negates the sovereign equality of states as professed by principle of customary international humanitarian law. The inequality in the policy has been legitimized by the 1968 Non-proliferation Treaty, which entered into force on March 5 1970.<sup>45</sup> The treaty, apart from the initial five Nuclear Weapon States who has manufactured and exploded a nuclear weapon or other nuclear explosives prior to 1 January 1967, prohibits other sovereign states from manufacturing, stockpiling and using nuclear weapons and other prohibited weapons in armed conflicts. The prohibited means of warfare are examined hereunder.

- a. **Nuclear Weapons:** is an explosive device that derives its destructive force from nuclear reactions (fission bomb) or from a combinations of fission and fusion reactions (thermonuclear bomb).<sup>46</sup> Both bomb types release large quantities of energy from relatively such amount of matter<sup>47</sup>. The first nuclear weapons were bombs delivered by aircraft. Later, warheads were developed for strategic ballistic missiles, which have become by far the most important nuclear weapons.<sup>48</sup> A blast from a relatively small nuclear bomb of 100kms over a city would flatten at least half of the building within a 5-6km radius. Nuclear weapons were first used during the Second World War<sup>49</sup>. As earlier mentioned, there are five officially declared nuclear weapon states, however, recently there has been global agitation by other NNWS for the disarmament of nuclear weapons by States who still have them in their possession.
- b. **Weapons of Mass Destruction:** this is a weapon with the capacity to inflict death and destruction on such a massive scale and so indiscriminately that its very presence in the hands of a hostile power can be considered a grievous threat.<sup>50</sup> It is a radiological, chemical, biological or any other weapon that can kill and bring significant harm to a large number of humans or cause great damage to human-made structures (buildings), natural structures (mountains) or the biosphere.<sup>51</sup> The United States military refers to weapon of mass destruction as chemical, biological, radiological or nuclear weapons

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<sup>39</sup> M.T Ladan, 'Materials and Cases on Public International Law' ( Ahmadu Bello University Press, 2007) 216

<sup>40</sup> R.J Rummel, 'What is Peace 5 Understanding Conflict and War: The Just Peace' available at <[www.hawaii.edu](http://www.hawaii.edu)> Retrieved 15<sup>th</sup> June, 2021

<sup>41</sup> *Ibid.*

<sup>42</sup> A. Royce, 'A Definition of Peace' (2004) 10 (2) *Peace and Conflict: Journal of Peace Psychology* available at <[www.tandfonline.com](http://www.tandfonline.com)> Retrieved 15<sup>th</sup> June, 2021

<sup>43</sup> L.A Fast, 'Peace and Security' (2002) 2 *Human Resources and their Development*, Pp. 1-5 available at <[www.eolss.net](http://www.eolss.net)> Retrieved 15<sup>th</sup> June, 2023

<sup>44</sup> *Ibid.*

<sup>45</sup> The Treaty relates to nuclear weapons, one of the categories of weapons described as weapons of mass destruction.

<sup>46</sup>W. A. Adebayo, (2002) United Nations and Disarmament (Unpublished) Essay submitted to the Faculty of Law, Obafemi Awolowo University, Nigeria for the award of LL.M.

<sup>47</sup> T.B Cochran, Nuclear Weapon 2011 available on [www.britannica.com](http://www.britannica.com) accessed 9 June 2021

<sup>48</sup> *Ibid.*

<sup>49</sup> The 2<sup>nd</sup> World War was fought between 1939 and 1945 and it involved most of the world nations organized into two opposing military alliances- the Allied and the Axis.

<sup>50</sup> A Tikkanen, 'Weapon of Mass Destruction' 2017 *Encyclopedia Britannica* available on [www.britannica.com](http://www.britannica.com) accessed 9 June 2021

<sup>51</sup> T Red-Larsen, Weapon of Mass Destruction 2009 3 *International Peace Institute* available on [www.ipinst.org](http://www.ipinst.org) accessed 9 June 2021; See Rule 73-76, Customary International Humanitarian Law; Article 1, Biological Weapon Convention (1975)

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capable of a high order of destruction or causing mass casualties and exclude the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon.<sup>52</sup> Crimes and criminal procedure of the United States of America defines weapons of mass destruction as “any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals, or their precursors”.<sup>53</sup>

- c. **Conventional Weapons:** this includes weapons other than weapons of mass destruction, they are weapons used on land, water, and sea by military, and they include rifles, explosive projectiles, artillery, machine guns, landmines, expanded bullets,<sup>54</sup> rockets and bobby traps<sup>55</sup>. It also encompasses a wide range of equipment not limited to armoured combat vehicles, drones, combat helicopters, combat aircraft, warships, small arms and light weapons, landmines, cluster munitions,<sup>56</sup> ammunitions and artillery.<sup>57</sup> They are the principal tools used in all wars up to the present day. They are also the weapons used by kidnappers and armed robbers to effectively carry out their operations. Thousands of people are injured, killed, raped and forced to flee their home during armed conflict. In Nigeria, for instance, insecurity is the order of the day because you are not safe in your home for fear of armed robbers and not safe on the road for fear of kidnappers and armed bandits.
- A. **Environmental Weapons:** this is the manipulation of the constituents of the environment for use as weapon of warfare. The components used are the atmosphere, oceans, landmasses and associated water system. Environmental weapons are objects that are considered weapons, which replace a character's weapon skills with a new set of skills, depending on the nature of environmental weapon.<sup>58</sup> The atmosphere can be modified for the purpose of war through: Fog and cloud dispersion; Fog and cloud generation; Hailstone production; Release of materials which might alter the electrical properties of the atmosphere; Introduction of electromagnetic fields into the atmosphere; Generating and directing destructive storms; Control of lightning; Disruption of the ionized or ozone layers; Pellet stone production; Rain and snow making (acidic rain made by the United States of America on Argentina) and Climate modifications.

### 5.0 Environmental Impacts of Weapons of Warfare

The effect of war has far gone beyond human suffering. Armed conflict has devastating effect on the environment. It is on record that some battlefields of the World War I and II are still unfit for human habitation and cultivation.<sup>59</sup> Consequently, environmental law of war exists to provide protection to the environment during armed conflicts. The effects of warfare on the environment continued with the invention of weapons of mass destruction and nuclear weapons which imposes both direct and indirect effects on the environment. These effects include but not limited to the following:

- a) **Destruction of Habitat:** Bombing and other methods of modern warfare directly harm and wipe off wildlife and biodiversity such as, humans, animals and natural resources from the earth.<sup>60</sup> For example, the Vietnam War where large quantity of Agent Orange (herbicide) was sprayed on the forests and mangrove swamps that provided cover to guerrilla soldiers by the U.S forces. The release of this green gas emission resulted in 400,000 deaths and disabilities and also the birth of 500,000 children with disabilities.<sup>61</sup>
- b) **Internal Displacement:** War usually results in the destruction of life and properties thereby transforming national citizens to homeless refugees.<sup>62</sup> This displaced persons resort to sleeping in refugee camps for protection. Also, in times of war, many flee their homes for fear of being maimed or killed.<sup>63</sup> For example, in Nigeria, there are many refugee camps in the

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<sup>52</sup> Department of Defense, 'Dictionary of Military and Associated Terms' available at <[www.dtic.mil](http://www.dtic.mil)> Retrieved 9<sup>th</sup> June, 2021

<sup>53</sup> Section 2332a, Para c(2)(B) Title 18 Crime and Criminal Procedure Codes (US), 1948

<sup>54</sup> Rule 77, Customary International Humanitarian Law

<sup>55</sup> Rule 80, *Ibid*.

<sup>56</sup> Convention of Cluster Munitions, 2008

<sup>57</sup> G. Evans, 'Conventional weapons' (2021) *United Nations Regional Centre for Peace and Disarmament in Asia and the Pacific*, available at <[www.unrcpd.org](http://www.unrcpd.org)> Retrieved 9<sup>th</sup> June, 2021

<sup>58</sup> W.A Adebayo, *Contemporary Issues in International Environmental Law* (Ekiti State University printing press 2017) 154

<sup>59</sup> Bonn International Center for Conversion, 'Wars and Violent Conflicts' (2010) available at <<https://www.warpp.info>> Retrieved 10<sup>th</sup> June, 2021

<sup>60</sup> M. VRai, 'The Impact of War on Our Natural Environment' (2022) available at <<https://www.fawco.org>> Retrieved 10<sup>th</sup> June, 2021

<sup>61</sup> M. Lallanilla, 'The Effects of War on the Environment' [www.thespruce.com](http://www.thespruce.com) accessed 10 June 2021

<sup>62</sup> Bonn International Center for Conversion, (n77) *Ibid*;

<sup>63</sup> S. Moore, 'The Impact of War on Global Health' (2021) available at <<https://www.news.medical.net>> Retrieved 9<sup>th</sup> June, 2021

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north eastern part of the country for people whose houses have been burnt or those who escaped the city of invasion for fear of been kidnapped or killed during Boko Haram insurgency.

- c) **Destruction of Infrastructural Facilities:** One of the main target during war is the destruction of enemy's cultural objects and facilities, roads, bridges, dams, installations<sup>64</sup> and poisonings of their drinking waters. Armed conflict leads to large scale destruction of cultural heritage and the foundation of communities' lasting peace.<sup>65</sup> In Nigeria, for example, is the destruction of Niger Bridge in Asaba during the civil war and also bombing of Sambisa Bridge by the Boko Haram to prevent the military from reaching them.
- d) **Health Hazard and Genetic Disorders:** The use of sophisticated weapons of warfare have a serious lethal effects on human health. They result in sicknesses including cancer, lungs diseases and also causes paralysis, and deafness.
- e) **Extinction of Wildlife Animals:** the search for Boko Haram by the Nigeria military for the release of Chibok girls led them to the Sambisa forest. This army will eventually result to feeding on animals in the forest when they are short of foods. This act has led to the extinction of wildlife animals in the Nigerian forest. In addition, the bombing and setting of landmines in the forest has led to the death of many bush meats and has scared them from this part of the country.
- f) **Victims of War:** Although, World War II literarily marked the end to the killing of such a scale, and no other war since then has led to so much destruction, it has been estimated that over 2 million people have still died in violent conflicts between 1989 -2022. However, it should be noted that the actual number of victims of war can only be estimated, and this is because victims are categorized as those who died as a direct result of armed violence, leaving out who died during the war as a result of exposure, wounds or illness sustained, epidemics or as a result of sexual violence and hunger.<sup>66</sup>

### 6.0 United Nations' Legal Regime on Weapons of Warfare

The United Nations was created in 1945, following the devastation of the Second World War (1939-1945), with one central mission, which is the maintenance of international peace and security. The United Nation Security Council has the primary responsibility for international peace and security. The General Assembly and the Secretary-General play major, important and complementary roles, along with other United Nation offices and bodies.<sup>67</sup> The Security Council can take enforcement measures to maintain or restore international peace and security.<sup>68</sup>

Peace enforcement does not require the consent of the main parties and may involve the use of military force at the strategic or international level, which is normally prohibited for member states.<sup>69</sup> In general, Humanitarian Law prohibits any weapon "of a nature to cause superfluous injury or unnecessary suffering" and any that may have indiscriminate or excessively injurious effects.<sup>70</sup> Weapons must not be used in a way that would not be justified by a genuine military requirement or that would be disproportionate to the military advantage sought or to the supposed military threat.

The Hague Conventions were adopted at the Peace Conference that was held in Hague, Netherlands in 1899 and 1907. The convention is concerned with the prohibition on the use of projectiles that disperse asphyxiating gas and the prohibition on the use of bullets that expand or flatten easily in the human body.<sup>71</sup> The Nuclear Test Ban Treaty was submitted to the United Nations disarmament commission on July 29, 1954 and was concerned about humanitarian effects. The 1963 treaty banning nuclear weapon tests in the atmosphere, outer space and under water was a step towards the banning of nuclear weapon test. The Treaty otherwise known as Partial test ban Treaty was limited to testing in the atmosphere, outer space and under water. The implication is that, nuclear weapon test can continue underground. The continued show of dissatisfaction by the global community brought to limelight the Comprehensive Nuclear Test Ban Treaty. CTBT was adopted in 1996 at the United Nations conference on disarmament but has not entered into force because it has to be ratified by forty-four nuclear-capable States. However, as of June 2015, 183 States had signed it and 164 had ratified it.<sup>72</sup> The Treaty imposes upon the states;

*the obligation not to carry out any nuclear weapon test or any other nuclear explosion and to prohibit and prevent such nuclear explosion at any place under their jurisdiction or control,*

<sup>64</sup> Rule 42, Customary International Humanitarian Law (CIHL), 2005

<sup>65</sup> See Article 4 Hague Convention, 1954; Rule 38, *Ibid*.

<sup>66</sup> Bonn International Center for Conversion, (n77) *Op.cit*.

<sup>67</sup> United Nations, 'Maintain International Peace and Security' available on <[www.un.org](http://www.un.org)> Retrieved 10<sup>th</sup> June, 2021

<sup>68</sup> Chapter VII of the United Nations Charter

<sup>69</sup> Article 2 (4) of the United Nations Charter

<sup>70</sup> Rule 70 Customary International Humanitarian Law, 2005; Article 35(2) Additional Protocol I, 1977

<sup>71</sup> F Bouchet-Saulnier, 'The Hague Conventions of 1899 and 1907' available on <[www.guide-humanitarian-law.org](http://www.guide-humanitarian-law.org)> available 11<sup>th</sup> June, 2021

<sup>72</sup> *Ibid*.

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*as well as to refrain from causing, encouraging or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.*<sup>73</sup>

From 1959 to 1961, various resolutions were adopted by the General Assembly aimed at preventing the testing, acquisition, use, deployment and proliferation of nuclear weapons. Resolution 1665 (XVI) notes that the targets of nuclear weapons would not just be "enemies" but "peoples of the world not involved in...war", with devastation that would "exceed even the scope of war and cause indiscriminate suffering and destruction to mankind.... contrary to the rules of international law and to the laws of humanity".

The 1972 Convention on the prohibition of the development, production and stockpiling of Bacteriological (biological) and Toxin weapons is another legal instrument that incorporates the United Nations policy on weapons of warfare. The Biological Weapons Convention (BWC) was opened for signature on 10 April 1972 and entered into force on 26 March 1975. It supplements the 1925 Geneva protocol, which had prohibited only the use of biological weapons.<sup>74</sup> The convention effectively prohibits the development, production, acquisition, transfer, stockpiling, use of biological, and toxin weapons. It was the first multilateral disarmament Treaty banning an entire category of weapon of mass destruction. The Convention undertakes to destroy biological weapons or divert them to peaceful purposes.<sup>75</sup> It also undertakes not to transfer, or in any way assist, encourage or induce anyone to manufacture or otherwise acquire biological weapons.<sup>76</sup> The BWC is important because it represents the international community's will to prevent biological warfare and the deliberate use of disease as a weapon. It is an indispensable legal and political instrument that reinforces the widespread condemnation of biological weapons.<sup>77</sup>

The Convention was heralded as multilateral, but was largely determined by United States and soviet interests.<sup>78</sup> Biological weapons portend a great danger to humanity because of its use clandestinely. Biological weapon otherwise known as "germ warfare" include bacteria, viruses or fungi to disrupt or end human life. Biological weapon as a specific weapon of mass destruction requires a strong legal framework to prohibit its development in view of the danger it may cause to the society where non-state actors or terrorist groups have access to the technology and delivery. The Convention contains provision that justifies its development, production and acquisition. By Article 1 of the Convention, an individual, group or nation will not be liable for the production or acquisition of biological weapons where it is for protective or peaceful purpose.

The Convention on Certain Conventional Weapons was adopted on 10 October 1980, opened for signature on 10 April 1981 for 1 year, and entered into force on 2 December 1983 with 50 States as signatory to the Convention. The purpose of the convention is to ban or restrict the use of specific types of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately. Nigeria with five other States are signatory to this Convention but are yet to ratified the Convention. The 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) states that any use, threat of use, or possession of nuclear weapons is unacceptable in humanitarian, moral and legal terms.<sup>79</sup>

There is the Convention on the Prohibition of the Development, Production, Stockpiling and use of Chemical Weapons and on their Destruction. The convention entered into force in April 1997. The aim of the Convention is to eliminate an entire category of weapons of mass destruction by prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by State parties. Parties are required to destroy chemical weapons it owns or possesses as well as its facilities not later than two years after the entry into force of the Convention. State parties, in turn, must take the steps necessary to enforce the prohibition in respect of persons (natural or legal) within their jurisdiction.<sup>80</sup> Chemical weapons as a toxic chemical that can cause death, injury, incapacitation and sensory irritation deployed by a delivery system such as an artillery shell, rocket or ballistic missile which includes nerve agents, bluster agents, choking agents and blood agents. Chemical weapon was used during the First World War when Germany released chlorine gas from pressurized cylinders in April 1915. The use of poison as a

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<sup>73</sup> Article 1 Comprehensive Nuclear Ban Treaty, 1996

<sup>74</sup> C.K Mailu, 'Biological Weapons Convention' (2020) available at <[www.un.org](http://www.un.org)> Retrieved 10<sup>th</sup> June, 2021

<sup>75</sup> Article II Biological Weapons Convention, 1975

<sup>76</sup> Article III, *Ibid.*

<sup>77</sup> NTI, 'The Biological Weapons Convention' (2021) *Institute of International studies* available at <[www.nti.org](http://www.nti.org)> Retrieved 10<sup>th</sup> June, 2021

<sup>78</sup> R. Johnson, 'The United Nations and Disarmament Treaties' (2014 LI (3) *Conference Diplomacy*, available at <[www.un.org](http://www.un.org)> Retrieved 10<sup>th</sup> June, 2021

<sup>79</sup> ICRC, 'Weapons: Statement of the ICRC to the United Nations' (2018) available at <[www.icrc.org](http://www.icrc.org)> Retrieved 10<sup>th</sup> June, 2021

<sup>80</sup> Article VII Chemical Weapons Convention, 1993 available at <[www.opcw.org](http://www.opcw.org)> Retrieved 10<sup>th</sup> June, 2021



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means of warfare, whether nerve agents, mustard gas, chlorine or any other toxic chemical is absolutely prohibited and binding on all parties to all armed conflicts by the Chemical Weapons Convention.<sup>81</sup>

### 7.0 Implications of United Nations Policy on Weapons of Warfare

The United Nations Charter of 1945 provides for equal status among the parties and members of the United Nations. The United Nations who has vested some states with permanent membership of the Security Council and veto power has continued to be the foundation of sovereign inequality among member nations. Its inequality policy of member was further complemented by the 1968 nuclear Non-proliferation treaty, which recognizes five states, that is, the permanent member of the Security Council as nuclear weapon state. The implications of this is that, those states given the status of nuclear weapon state have the right to develop, acquire, use and stockpile weapons of mass destruction while others are disqualified. The indefinite extension of the disarmament provisions of the NPT has also been considered oppressive. The convention for the prohibition of nuclear weapon, which gives equality to all the States was opposed by the nuclear weapon States.

This renegeing has no doubt exacerbated terrorist activities especially from the Middle East by non-state actors who believed their activities is an expression of disgust against inequality and discriminatory attitude of some countries who considered themselves as superior to others. Peace will continue to be elusive where there is perceived injustice. The United Nations' policy on weapons of warfare remains a potent expression of inequality in the conduct of international affairs.

### 8.0 Maintaining Global Peace and Security: United Nations' Challenges

As the United Nations Secretary General Antonio Guterres released his new peace building and sustaining peace report, Larry Attree argues that the United Nations must boldly address five big challenges constraining its peace efforts. The United Nations over the years has engaged in a series of process to strengthen its ability to perform its core function, which is to maintain peace and security across the globe and save succeeding generations from the scourge of war. The United Nations is faced with numerous challenges that will hinder the achievement of global peace and security and they are as follows;

- a) Threats from poverty, disease, and environmental breakdown
- b) Threats from conflict between states
- c) Threats from violence and massive human rights violations within states
- d) Threats from terrorism
- e) Threats from organized crime

### 10.0 Conclusion and Recommendations

The study has examined the United Nations policy on weapons of warfare and the implication for global peace and security. The paper analyses war, warfare, peace putting into consideration the policy on the use of weapons across the globe. The United Nations has an active presence in the world through peace operations, which has become central for the United Nations Security Council and its approach to maintaining peace. Peace has indeed been kept between States across the world, States such as Israel-Syria, Iraq-Kuwait etc. The United Nations has recorded huge success in preventing inter-state conflict that may lead to war. The active presence of the United Nations in the world through its different missions has resolved disputes, inhibited escalation of conflict and spurred peace in some situations. People around the world want peace and prosperity, they want leaders to champion peace building and not a figure-head leader, a leader with sense of responsibility to the plight of humanity in the face of insecurity, a leader who will work to prevent conflicts and build peaceful co-existence among citizens, a leader who will not undermine international norms and standards aimed at promoting peace and human security, and a leader that will build a just and inclusive society. With this kind of leader in all the nations of the world, peace and security will be sustainable.

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<sup>81</sup> *Ibid.*



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## Autonomous Learning Process and English Language Autonomy among Grade 10 Learners in Camp Vicente Lim Integrated School



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**ABSTRACT:** The main thrust of this study was to determine the level of manifestation of autonomous learning process in relation to the level of English language autonomy of Grade 10 learners in Camp Vicente Lim Integrated School and to be assured that autonomous learning process and language autonomy is successfully implemented and developed most especially among the public school. The action plan for implementing autonomous learning process and improving the level of language autonomy was the output of the study. This study followed the descriptive-correlational method design. Through simple random sampling, the respondents were the 250 Grade 10 learners randomly picked from different sections. Validated researcher-made survey instruments were used for gathering of data. Using four-point Likert Scale and the simple mean, and Pearson-r correlation coefficient, findings revealed that autonomous learning process was highly manifested among Grade 10 learners and the learners' level of language autonomy was also highly manifested. As regards the relationship between the manifestation of autonomous learning process and language autonomy, the result indicated a significant relationship.

**KEYWORDS:** autonomous learning process, English language autonomy, modular distance learning

### INTRODUCTION

As the COVID-19 pandemic unexpectedly happened last 2019 and still surging up until now, it is necessary to take safety measures such as implementing social distance between people and seems like nothing in human's daily social activities was left unaffected. One of the most affected fields that COVID-19 brought so many changes is the education sector. It is when schools, institutions, and even universities around the world are forced to close their doors and stop operating face-to-face learning to prevent its fast spread. Educators are obliged to think of alternative methods and educational technologies that will be effectively used while face-to-face classroom setup is temporarily prohibited.

With this matter, the adoption of distance education and online learning becomes not just a trend but also an urgent necessity, rather than an option. In mere cases, teachers, parents, and students in all corners of the world have been facing challenging times facing the COVID-19 pandemic. But despite these challenges, one positive outcome of the shipment from traditional face-to-face learning to modular or virtual learning is that it encourages students to learn independently and at their own pace. A potential drawback is that students face obstacles in interacting and learning from one another's contributions.

In relation, the specific features of distance learning which emanate from the geographical distance separating the students from their teacher and the educational institution, have sparked a great research interest regarding the factors which effectively determine the learners' successful participation in distance learning environments. In this respect, great significance is attributed to the autonomous learning process and language autonomy in distance learning environments, since the alternative educational intervention offered in distance education encourages learners towards learning autonomy.

Hence, considering the important role of autonomous learning process and English language autonomy, the current study sought to examine the correlation between the level of manifestation of the autonomous learning process and the level of English language autonomy in distance education specifically to those taking the modular approach.

The study was conducted with the interest of gaining assurance if the English teachers in Camp Vicente Lim Integrated School still or do integrate autonomous learning process in constructing modules and teaching English language among the Grade 10 learners.

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Moreover, the result of the study showed that the Grade 10 students were mature enough and had a sufficient level of understanding to grasp the concept of autonomy. It also served as excellent preparation for them to begin senior high school, as they will be more prepared and responsible in their studies.

### METHODS

The study utilized a quantitative approach with used of a researcher-made survey instrument, a questionnaire. To be more specific, descriptive-correlational design was employed. Tankersley (2015) defined descriptive-correlational as a type of research method that involved observing variables to establish a statistically corresponding relationship between or among them. The study was conducted in Camp Vicente Lim Integrated School that served as help to the language teachers in English. A simple random technique was employed in determining the sample from the chosen population. Computed through G-Power Formula, a sample of two-hundred and fifty (250) respondents was determined from the seven-hundred and six (706) Grade 10 learners in Camp Vicente Lim Integrated School in the division of Calamba City.

A 20-item researcher-made questionnaire for student-respondents was formed and utilized as the instrument of the study to assess the level of manifestation of autonomous learning process which was divided into two parts to specifically examine the level of manifestation of autonomous learning process in terms of fostering autonomy in language learning and setting the stage for fostering autonomous learning process. Meanwhile, another 40-item research-made questionnaire for learners was used to assess the level of English language autonomy in terms of the metacognitive abilities such as planning, monitoring, organizing, and evaluating abilities. These researcher-made questionnaires were based on the theories anchored in this study and the related literature and studies gathered by the researcher. The test was scored on a four-point Likert scale to ease administration, scoring, and assessment. It was classified on a four-point scale, with four (4) being the highest and one (1) being the lowest.

The data were gathered with the permission from the Schools Division Office and the school head of Camp Vicente Lim Integrated School (CVL IS), Calamba City to conduct the study. The questionnaires were administered through google form. Through the whole process of data gathering, the researcher strictly followed the Inter-Agency Task Force (IATF) health protocols to ensure the safety of the personnel involved in the study. The data gathered from the survey were collected, tallied, and treated using the mean and the four-point Likert Scale as used to describe the level of manifestation of autonomous learning process among Grade 10 learners and the level of the English language autonomy of the Grade 10 learners in Camp Vicente Lim Integrated School and Pearson r to determine the relationship between the level of manifestation of autonomous learning process and English language autonomy level of the Grade 10 learners in Camp Vicente Lim Integrated School.

### RESULTS AND DISCUSSION

Discussion per problem and per table/thematic chart followed by discussion, interpretation/reflection, and supporting literature.

**Table 1.1**

Level of Manifestation of Autonomous Learning Process among Grade 10 Learners in Camp Vicente Lim Integrated School as assessed by the Learners in terms of Fostering Autonomy in Language Learning

Indicators in terms of Fostering Autonomy in Language Learning	Students	
	$\bar{X}$	VI
I analyze my strengths and weakness in learning the English language.	3.30	HM
I write down my needs in learning the English language.	3.22	M
At the beginning of the school year, I set out short and long-term goals in improving my English proficiency.	3.35	HM
As I discover new things about learning English, I write these down in my journal.	2.94	M
I join in extracurricular activities that will help me better understand English even more.	2.92	M
I use all available resources (libraries, internet, software, music, literature, television, etc.) to study and practice English as I answer my module in English.	3.53	HM
I attend seminars, conferences, or conversation clubs to learn practice English even outside of school.	2.40	SM
I attend tutorial schedules to consult about learning strategies that I can use to easily learn and use English.	2.74	M

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I evaluate my learning progress as my teacher gives me my scores in quizzes, activities, and tests in every grading period to track my performance in English.	3.39	HM
I use different strategies in learning.	3.33	HM
<b>General Assessment</b>	<b>3.11</b>	<b>M</b>

Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M)  
1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

Table 1.1 shows level of manifestation of autonomous learning process among Grade 10 Learners in Camp Vicente Lim Integrated School as assessed by the learners themselves in terms of Fostering Autonomy in Language Learning. The general assessment was **3.11** which was verbally interpreted as **Manifested**. Furthermore, the indicator “I use all available resources (libraries, internet, software, music, literature, television, etc.) to study and practice English as I answer my module in English” had the highest computed composite mean of **3.53** which was verbally interpreted as Highly Manifested while the indicator “I attend seminars, conferences, or conversation clubs to learn practice English even outside of school” had the lowest computed composite mean of 2.40 and was verbally interpreted as Slightly Manifested.

It implies that the Grade 10 learners somewhat uphold autonomy in language learning even during distance learning as evidenced by how they utilized all available resources to study and practice English, how they evaluate their own progress, how they set out their own goals for improvement in English proficiency, how they analyze their strengths and weaknesses in learning the English language, and how they use different learning strategies. Hence, promoting learner autonomy was relevant in the field of learning the English language due to the multiple benefits it will bring to the process of learning a new language. At the same time, the manifestation of autonomous learning process in learning English was very significant for learners to gain and improve competence in the English language.

**Table 1.2**

Level of Manifestation of Autonomous Learning Process among Grade 10 Learners in Camp Vicente Lim Integrated School as assessed by Learners in terms of setting the Stage for Fostering Autonomous Learning Process

Indicators in terms of Setting the Stage for Fostering Autonomous Learning Process	Students	
	$\bar{X}$	VI
I always see to it that my teacher understands my learning goals in English so she can guide me in achieving them.	3.42	HM
I have my personal goals in learning English instead of solely following the instructional objectives from schools.	3.28	HM
I make learning plans in English that will serve as my guide in monitoring my learning progress.	3.15	M
I have the initiative to look for other resources for English learning.	3.32	HM
I am motivated to always look for new opportunities in learning the English language.	3.51	HM
I choose more than one learning strategies that I can use to easily learn the English language.	3.38	HM
I become independent in learning.	3.33	HM
I am encouraged to become creative in doing the activities.	3.38	HM
I enhance my communication skills and I become a critical thinker in doing the activities in our lessons in English.	3.37	HM
I can practice and apply social responsibilities even during Modular Distance Learning because of the activities provided by my teacher.	3.53	HM
<b>GENERAL ASSESSMENT</b>	<b>3.36</b>	<b>HM</b>

Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M)  
1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

It implies that the Grade 10 English teachers are fully able to set the stage for fostering an autonomous learning process even during distance learning such as adding activities that develop socially responsible learners even during Modular Distance Learning and also enhance their communication skills, motivating learners to always look for new opportunities in learning English language,



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guiding learners to achieve their learning goals, empowering learners to use different learning strategies to be more creative and to be independent in learning.

**Table 2.1**

English Language Autonomy Level of the Grade 10 Learners in Camp Vicente Lim Integrated School in terms of Planning Abilities

Indicators in terms of Planning Abilities	$\bar{x}$	VI
I use my own way and strategy in selecting and planning activities that will help me learn English independently.	3.48	HM
I set out short and long-term goals to improve my English proficiency.	3.27	HM
I make further efforts when I believe I will achieve the target.	3.46	HM
I believe that the exercises are given to me for studying help me learn better.	3.60	HM
I plan and execute projects related to any of the topics proposed in the English class.	3.33	HM
I join my teacher and classmates, in making decisions about program design, contents, and evaluation of the English class.	2.99	M
I accept responsibility for planning and preparing a class topic or activity.	3.34	HM
I try to discover materials that will best suit my learning process and look for a way to access these materials.	3.43	HM
I choose and use my learning styles.	3.53	HM
I make a weekly learning plan to do advance learning in English.	3.26	HM
<b>GENERAL ASSESSMENT</b>	<b>3.37</b>	<b>HM</b>

Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M) 1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

It implies that the Grade 10 learners possess planning abilities which is one of the metacognitive abilities that portrays the manifestation of language autonomy such as believing that the exercises given to them will help them learn better, choosing what learning style to be used, using knowledge, preferences, habits, and strategies in selecting and planning activities to learn English on their own, making further efforts to achieve the learning target, discovering materials that will best suit their learning process and looking for ways to access these materials, being responsible for planning and preparing a class topic or activity, executing projects related to English, setting goals to improve English proficiency, and making weekly learning plan to do advance learning.

**Table 2.2**

English Language Autonomy Level of the Grade 10 Learners in Camp Vicente Lim Integrated School in terms of Monitoring Abilities

Indicators in terms of Monitoring Abilities	$\bar{x}$	VI
I am always aware of what level of English proficiency do I have.	3.17	M
I use diaries or language portfolios to monitor my progress in learning English.	2.98	M
I devote time to study and practice English even if I am not being monitored by my teacher.	3.21	M
I take extra assignments or academic activities to learn English, even if they do not represent a course grade.	2.88	M
I am aware of my strengths and weaknesses while learning.	3.50	HM
I utilize technology to learn and practice English.	3.41	HM
I interact with my classmates and my teacher in English learning	3.16	M
I focus on learning activities.	3.43	HM
I think I am responsible for my language learning, improvement, and proficiency level.	3.38	HM
I can use some useful exercises which I use to learn other foreign languages.	3.41	HM
<b>GENERAL ASSESSMENT</b>	<b>3.25</b>	<b>HM</b>

Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M) 1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

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Table 2.2 shows English language autonomy level of the Grade 10 learners in Camp Vicente Lim Integrated School in terms of Monitoring Abilities. The general assessment was **3.25** which was verbally interpreted as **Highly Manifested**. Furthermore, the indicator “I am aware of my strengths and weaknesses while learning” had the highest computed composite mean of **3.50** which was verbally interpreted as **Highly Manifested** while the indicator “I take extra assignments or academic activities to learn English, even if they do not represent a course grade” had the lowest computed composite mean of **2.88** and was verbally interpreted as **Manifested**.

It implies that the Grade 10 learners possess monitoring abilities which is one of the metacognitive abilities that portrays the manifestation of language autonomy such as learners are aware of their strengths and weaknesses while learning, well-focused on learning activities, and use some useful exercises to learn other foreign languages, utilize technology to learn and practice English, and is taking responsibility in language learning, improvement, and proficiency level.

**Table 2.3**

English Language Autonomy Level of the Grade 10 Learners in Camp Vicente Lim Integrated School in terms of Organizing Abilities

Indicators in terms of Organizing Abilities	$\bar{X}$	VI
I express my preferences for certain types of learning activities in class.	3.19	M
I try to make connections about old and new things you have learned in English.	3.30	HM
I organize an English study group outside of the class.	2.71	M
Revisions that I do myself enhance my learning	3.16	M
I propose to change the way class issues are carried out	2.96	M
I contribute ideas to improve the dynamics, activities, and materials in English class.	3.14	M
I select and critically analyze materials and books for personal use in learning English.	3.22	M
I collaborate with my classmates in English learning.	3.09	M
I propose materials for the English class.	2.89	M
I help in the learning process of my classmates and help them in learning English.	3.11	M
<b>GENERAL ASSESSMENT</b>	<b>3.07</b>	<b>M</b>

Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M) 1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

It implies that the Grade 10 learners possess organizing abilities which is one of the metacognitive abilities that portrays the manifestation of language autonomy such as learners are able to make connections about old and new things they have learned in English, select and critically analyze materials, and references, have preferences on learning activities, do revisions to enhance learning, contribute ideas to improve dynamics, activities, and materials in English class, help peers to learn English, and do collaborative learning.

**Table 2.4**

English Language Autonomy Level of the Grade 10 Learners in Camp Vicente Lim Integrated School in terms of Evaluating Abilities

Indicators in terms of Evaluating Abilities	$\bar{X}$	VI
At school, I reflect on the relationship between English and the culture associated with this language.	3.23	M
I discover and explore my favorite ways of relating to the language.	3.20	M
At school, I discover particular learning styles and strategies to learn English effectively.	3.32	HM
I reflect objectively on my performance as a language learner	3.22	M
I make use of the teacher’s feedback on assessments, workshops, and/or tests to study on my own and reinforce a topic.	3.30	HM
At school, I am aware of the level of proficiency I want to acquire in English.	3.34	HM
I can identify my mistakes in English and correct them on my own.	3.10	M
I check my writing assignments at regular intervals to see my progress.	3.22	M

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I am taking notes to remember my language development better.	3.30	HM
I examine the targets that I aim to get.	3.36	HM

<b>GENERAL ASSESSMENT</b>	<b>3.26</b>	<b>HM</b>
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Legend: 3.25 – 4.00 Highly Manifested (HM) 2.50 – 3.24 Manifested (M) 1.75 – 2.49 Slightly Manifested (SM) 1.00 – 1.74 Not Manifested (NM)

Table 2.4 shows English language autonomy level of the Grade 10 learners in Camp Vicente Lim Integrated School in terms of Evaluating Abilities. The general assessment was **3.26** which was verbally interpreted as **Highly Manifested**. Furthermore, the indicator “I examine the targets that I aim to get” had the highest computed composite mean of **3.26** which was verbally interpreted as **Highly Manifested** while the indicator “I can identify my mistakes in English and correct them on my own” had the lowest computed composite mean of **3.10** and was verbally interpreted as **Manifested**.

It implies that the Grade 10 learners possess evaluating abilities which is one of the metacognitive abilities that portrays the manifestation of language autonomy such as the learners are able to examine the targets that they aim to get, aware of the level of proficiency they want to acquire, discover learning styles and strategies to learn English, check my writing assignments at regular intervals to see their progress, make use of the teacher’s feedback on assessments to reinforce independent learning, and take notes to remember language development better.

**Table 3**

Test of Significant Relationship between the Level of Manifestation of Autonomous Learning Process and English Language Autonomy Level of the Grade 10 Learners in Camp Vicente Lim Integrated School

Autonomous Learning Process	English Language Autonomy	r value	P value	Remarks	Decision
Fostering Autonomy in Language Learning	Planning Abilities	.387**	.000	Significant	Reject H <sub>0</sub>
	Monitoring Abilities	.391**	.000	Significant	Reject H <sub>0</sub>
	Organizing Abilities	.305**	.000	Significant	Reject H <sub>0</sub>
	Evaluating Abilities	.264**	.000	Significant	Reject H <sub>0</sub>
Setting the Stage for Fostering Autonomous Learning Process	Planning Abilities	.437**	.000	Significant	Reject H <sub>0</sub>
	Monitoring Abilities	.394**	.000	Significant	Reject H <sub>0</sub>
	Organizing Abilities	.361**	.000	Significant	Reject H <sub>0</sub>
	Evaluating Abilities	.319**	.000	Significant	Reject H <sub>0</sub>

\*\*Correlational at the level 0.01

\*Correlational at the level 0.05(Two-tailed)

As shown in Table 3, the r values 0.387, 0.391, 0.305, 0.264, 0.437, 0.394, 0.361, and 0.319 were all interpreted as with positive correlation to correlate Autonomous Learning Process and English Language Autonomy, and the computed probability values were lower than the level of significant ( $p > 0.05$ ); thus, the null hypothesis was rejected. The result showed that there was significant relationship between the level of manifestation of autonomous learning process and level of language autonomy.

Based on the results, it can be deduced that fostering and setting the stage for fostering an autonomous learning process in the teaching strategies of the English teachers had an association with the English language autonomy of the learners, be it in terms of their planning, monitoring, organizing, or evaluating abilities.

Aside from that, the result also showed that there is a positive correlation between the manifestation of autonomous learning process and level of language autonomy as it explains that the higher the manifestation of autonomous learning process, the higher the level of language autonomy among learners will be. Thus, it can be said that integrating autonomous learning process in teaching English can help learners improve their language autonomy.

Even in online and other distance learning modalities, autonomous learning had also positive effects in learners' language performance. Hence, the autonomous learning process was indeed necessary to integrate in the curriculum especially when it was about learning the English language. Most necessarily, it should be introduced to all language teachers of English here in the Philippines

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for them to be familiar and to practice doing this to their learners to produce autonomous learners where they can learn independently and most of all to produce lifelong learners that the society needs.

The impact of acquiring autonomous learning skills among learners will be helpful not only in learning the English language but also in the development of lifelong skills in all aspects of life of the learners. Language teachers should integrate and adopted autonomous learning process as it helped learners to improve their abilities and became independent especially amidst the COVID-19 pandemic where modules were only distributed to the learners to learn without the physical guidance of a teacher.

### **CONCLUSIONS**

Based on the above-mentioned findings of the study, we can attest that although Grade 10 learners are equipped to set the stage for fostering an autonomous learning process somehow the manifestation of autonomous learning process is in a moderate level and this clearly shows that students still need assistance from language teacher to further foster autonomy in language learning. Integrating autonomous learning process in teaching English can help learners improve their language autonomy and the higher manifestation of autonomous learning processes the higher level of English language autonomy the learners can possess. Thus, technology-oriented Continuing Professional Development Workshops such as Autonomous Language Teaching and Learning Development Plan can be a helpful response to level up effective strategies to integrate autonomous learning process and promote language autonomy among learners most especially in the New Normal Education.

### **RECOMMENDATIONS**

In light of the following results and findings of the study, the research thus highly recommend that the English teachers may give attention to the learner's belief in developing their language autonomy as it can lead to a good impact in learning English effectively. However, English teachers are also encouraged to be mindful of the existing gap between teacher and learner's perception about language teaching and learning that can also result in different expectations. Also, English teachers may need to pay extra attention to the planning, monitoring, organizing, and evaluating abilities of the learners since these essential metacognitive abilities are the focus of the manifestation of language autonomy as it has relationship with improving the level of English language autonomy of the learners by doing giving them extra tasks/activities that will expose them to develop or enhance more these metacognitive abilities. It is also suggested that greater exploration of relationships between autonomy and other student-focused constructs such as self-regulation, self-motivation, agency, and identity may be done. Aside from that, school head may direct the Head Teacher and Master Teacher to motivate the English teachers in guiding the student's utilization of the Action Plan towards their development and improvement of their English Language Learning Autonomy.

Future researchers may consider pursuing this study by doing further and in-depth studies about this topic in different research locales and respondents or correlating the autonomous learning process to two or more variables aside from the four essential metacognitive abilities included in this study such as the English proficiency, academic performance of the learners in English, and many other more.

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## The Counteraction of Corruption in Indonesia Based On the International Agreement (Extradition) Between Indonesia and Singapore



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**ABSTRACT:** In early 2022, Indonesia signed an extradition agreement with Singapore. This extradition agreement with Singapore is crucial because Singapore has been one of the destinations for Indonesian fugitives, particularly in corruption cases. The territory of Singapore, with its direct proximity to Indonesia and the visa-free arrangement for Indonesian citizens visiting Singapore, creates an environment where criminals can potentially use Singapore as a final destination or transit point for their illegal activities. This analysis examines the counteraction of corruption in Indonesia based on the international agreement (Extradition) between Indonesia and Singapore. The research adopts a normative legal research approach. The extradition agreement between Indonesia and Singapore will facilitate law enforcement authorities in Indonesia in resolving criminal cases where the perpetrators are located in Singapore. This allows law enforcement to take action against the criminals. Extradition also makes potential wrongdoers think twice before attempting to flee to another country, knowing that the destination country has an extradition agreement in place. In the fight against corruption, the Indonesia-Singapore extradition agreement is beneficial in preventing criminals from escaping to other countries, enabling the apprehension of wrongdoers, and facilitating the recovery of assets obtained through corruption.

**KEYWORDS:** Corruption, Extradition Agreement, Indonesia, Singapore

### INTRODUCTION

Indonesia is a country governed by the rule of law, implying that all actions must be based on legal foundations. As a nation governed by the rule of law, Indonesia pursues national objectives, aiming not only to advance its own welfare but also to contribute to global order as a responsible member of the international community, as outlined in the preamble of the Constitution of the Republic of Indonesia. In its global context, Indonesia engages in relationships with other nations through various forms of regional, bilateral, or multilateral international relations. International relations with other nations are inseparable from the advancements in knowledge and technology that exist today, making it easier for countries to establish international connections without the limitations of distance and time. This facilitates the mobilization of interactions between nations. However, the increasing progress in knowledge and technology also presents negative opportunities for transnational crimes, as criminals can escape to other countries, taking advantage of the globalized and interconnected world.

This can be seen in recent times, where perpetrators of corruption have become increasingly adept at finding loopholes to escape to another country after committing corrupt acts in their home nation. In addition, these individuals also abscond with the assets acquired through corruption in the country they flee to. Perpetrators undertake these actions as a means of evading capture for their deeds. The consequence of these escapes significantly impacts their home country as it cannot apprehend the individuals who have committed corruption (Samekto, 2009). Countries affected by the escape of criminals to other nations cannot directly arrest the perpetrators of the crime or enter another country's territories without obtaining the targeted nation's approval. In international law, entering another country's territory requires the host nation's consent as a form of respecting the sovereignty and jurisdiction of each respective country.

A nation within its own territory has full jurisdiction to prosecute individuals who commit crimes within its borders. However, in practice, this can be hindered when perpetrators of legal violations have fled to another country. Consequently, the nation faces difficulties in taking action against these perpetrators in the territory of another country. To address this issue, international cooperation is undertaken in the interest of realizing order and justice (Syarifudin, 2016).

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In early 2022, Indonesia signed an extradition agreement with Singapore. The extradition agreement with Singapore is crucial because Singapore has been one of the destinations for Indonesian fugitives, particularly in corruption cases. Singapore's proximity to Indonesia, along with the visa-free travel for Indonesian citizens visiting the country, has made it possible for criminals to use Singapore as a final destination or transit point for their illegal activities.

In reality, only a few of the economic crime perpetrators who have fled to the territory of Singapore can be returned to Indonesia for trial in Indonesian courts. This situation underscores the necessity of an extradition agreement between Indonesia and Singapore as a robust legal instrument to facilitate the return of suspects to Indonesia. Conversely, Singapore can also request Indonesia to return suspects who have fled to Indonesia after committing crimes in Singapore. Moreover, the apprehension of economic crime perpetrators through this extradition agreement allows the repatriation of state funds they have taken and embezzled (Magdariza, 2023).

## Problem Formulation

1. How does the international extradition agreement between Indonesia and Singapore impact the efforts to counter corruption in Indonesia?

## RESEARCH METHODOLOGY

Research is a systematic process, a framework of steps that are carried out, planned, and systematic to obtain a solution to a particular problem or respond to a particular statement. Research is basically a search effort, not just a casual observation of an easily accessible object. Because the research aims to reveal the truth systematically, methodologically, and consistently, analysis and construction are carried out through this research process regarding the data collected and processed. To achieve the best results, the research method used is normative juridical, which consists of the main legal basis examined in depth in this research regarding the International Agreement (Extradition) between Indonesia and Singapore as well as the Law on Corruption Crimes (Undang-Undang Nomor 19 Tahun 2019).

## DISCUSSION

Currently, countries with criminal jurisdiction face challenges in the process of prosecuting criminals due to perpetrators fleeing to other countries to evade charges in their home countries. This prevents law enforcement officials from carrying out their duties to apprehend the perpetrators. The term "extradition" refers to the formal surrender under a mutual extradition agreement of a suspect or convicted individual for a criminal offense by the accusing or sentencing state, which has the authority to prosecute or penalize upon the request of the concerned state (Sahati, 2020).

Extradition is an international agreement involving two or more countries, with its specific content solely related to extradition matters. Typically, the implementation of such agreements occurs through ratification. Extradition agreements fall under the category of written international agreements. International agreements can be either written or unwritten. In this context, based on Article 38 of the Statute of the International Court of Justice, a written international agreement is recognized as one of the sources of international law. Additionally, written international agreements, as mentioned above, can further be distinguished from different perspectives, as outlined by I Wayan Parthiana (2002):

1. International agreements can be categorized based on the number of participating countries:
  - a. Bilateral international agreements involve only two parties or countries bound by the agreement.
  - b. Multilateral international agreements involve more than two countries as participants in the agreement.
2. International agreements can be categorized based on the opportunities given to countries to become parties or participants:
  - a. Specific or closed international agreements.
  - b. Open international agreements.
3. International agreements can be categorized based on their legal principles:
  - a. International agreements that establish legal principles specifically applicable to the involved parties.
  - b. International agreements that establish legal principles applicable in a specific region.
  - c. International agreements that establish legal principles applicable universally
4. International agreements can be categorized based on their language:
  - a. International agreements are formulated in a single language.
  - b. International agreements are formulated in two or more languages, but only the version in a specific language is considered valid and binding for the parties.

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- c. International agreements are formulated in more than two languages; all versions are valid, authentic, and have the same binding force.
5. International agreements can be categorized based on the legal substance they contain:
  - a. International agreements where all articles are formulations of customary international law principles in the relevant field.
  - b. International agreements that formulate or create entirely new principles of international law.
  - c. International agreements, whose substance is a combination of principles from customary international law and entirely new principles of international law.
6. International agreements can be categorized based on their initiators:
  - a. International agreements whose inception or formation is initiated by one or more countries.
  - b. International agreements whose inception or formation is initiated by an international organization.
7. International agreements can be categorized based on the scope of their application:
  - a. Specific international agreements.
  - b. Regional or area-specific international agreements.
  - c. General or universal international agreements.

The procedure for making an extradition agreement is similar to the creation of an international agreement, and the sequence is as follows (Eddy, 2021):

1. The original participating countries in an International Conference are prepared by the International Law Commission (commonly referred to as 'Original Members') as the initial step to carry out an action known as Article 9 of the Convention, the adoption of the text. The acceptance of the treaty text was initially a draft convention resulting from negotiations during the conference. According to the Convention's provisions, the adoption of the text, meaning the acceptance of the treaty's content, is done with the agreement of all participating countries in the conference or two-thirds of the attending participants, or it can also be done with the majority vote.
2. After the adoption of the text is done, the participating countries, according to Article 10 of the Convention, take an action known as Authentication of the Text. The significance of this action is the formal confirmation by the participating countries in the conference that the international conference has successfully formulated an international agreement that cannot be altered. The authentication of the text, an official act by the participating countries in the conference, signifies that the conference has accepted the agreement's text by including signatures or initials on the agreement sheets. Including signatures/initials does not yet bind the participating countries to the international agreement.
3. Suppose an international agreement stipulates that, by signing a participating country in the conference, the country is legally bound by the agreement. In that case, since the signing was done by the authorized representative of the country, the agreement has been accepted by the concerned country to be legally bound by the treaty, except when the agreement specifies the need for ratification.
4. If participating countries in the conference desire that, through the exchange of documents or instruments essentially constituting an international agreement, they express their agreement to be bound by the treaty (usually referred to as the Exchange of Letters/Notes, Agreed Minutes, Summary Record, Modus Vivendi, Memorandum of Understanding, and the like), then from the exchange of these types of agreements, the countries have declared their commitment to the treaty.
5. If, after the signing, the participating countries in an international conference wish for Ratification or Acceptance (Approval) performed by the competent authority of the participating country, then the signature is not a way to provide consent to be bound by a treaty. Instead, ratification signifies the agreement to be bound by an international agreement. According to international law, ratification is entirely left to the prospective treaty-participating country. Therefore, its regulation is based on the national legislation applicable within that country. International law only governs what kind of consent a country provides for a treaty that requires ratification.

I Wayan Parthiana explains that extradition is the formal surrender, either through a prior extradition agreement or based on the principle of reciprocity, of individuals accused of committing criminal offenses, such as suspects or those who have been sentenced (Wayan, 1990). The benefit of extradition is that criminals cannot escape accountability for their crimes. Without extradition, criminals could freely escape to countries that do not have extradition agreements, avoiding punishment for their actions, which would violate the principles of justice. Extradition also makes criminals think twice about fleeing to another country because they know the country has an extradition agreement (Waryenti, 2022).

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The increasing issue of criminals fleeing is not only faced by Indonesia but also by other countries. Therefore, extradition is a link in international cooperation to address this problem. One approach to preventing and countering international crimes is to utilize the extradition mechanism in international relations (Dwi Melia, 2020). Transnational crimes essentially involve acts that are criminal and cross national borders. However, the definition of transnational crimes varies among experts based on backgrounds, education, experience, and interests. Transnational crimes are criminal acts that occur between or across countries (Irwan Septa, 2022).

Extradition agreements have long been practiced internationally, either through bilateral or multilateral treaties, that are still used by various countries today and are considered the legal basis for creating such agreements in international law (Valentino, 2021). The surrender by one country to another, either as a suspect or a convicted individual, due to committing a criminal act outside the territory of the surrendering country and within the jurisdiction of the requesting country, constitutes extradition. The prosecution of the perpetrator can be carried out by the country where the crime occurred, or the individual can be extradited to the requesting country that has jurisdiction to prosecute, representing the implementation of international legal principles (Satria, Gholib, 2022).

The requirement for the requesting country is that there should be an existing agreement with the requested country, or at least it is advisable to be a matter of concern in extradition requests and acceptances (Sumual, 2019). In 1998, initial efforts were made towards an extradition agreement between Indonesia and Singapore. Subsequently, in 2002, discussions on cooperation in various fields took place, and both parties agreed to formulate an action plan to establish an extradition agreement. This continued in 2007 with the signing of the Defence Cooperation Agreement (DCA) between Indonesia and Singapore, serving as the starting point for the Indonesia-Singapore extradition agreement. In 2019, discussions on the Adjustment of the Boundaries of Flight Information Regions and the Security Cooperation Agreement were revisited by both countries. Finally, in 2022, Indonesia and Singapore signed an extradition agreement on January 25, 2022, with a retroactive period of 18 years.

Extradition, in its mechanism, is based on national legislation, extradition agreements, convention expansions, and international norms related to the formal legal provisions between Indonesia and Singapore, forming the basis for the extradition mechanism (Maringka, 2018). Various crimes such as corruption, money laundering, bribery, banking offenses, narcotics, terrorism, and funding activities related to terrorism are included in the 31 types of crimes that can be subject to extradition. Additionally, preventive measures against changing citizenship to evade legal proceedings are taken into account, and the perpetrator's citizenship is determined when the criminal act occurs.

Examples of transnational crimes include terrorism, narcotics, and corruption. Transnational crimes between countries can usually be eradicated through diplomatic means involving international relations between countries, one of which is through extradition. Corruption is a form of gaining profit or enriching oneself, others, or corporations that results in losses for the country committed by state officials, employees, or private individuals (Zulfikar, 2022).

Having a lack of moral integrity, living a consumptive lifestyle beyond one's means, and following orders from superiors that violate regulations are causes that can lead to the occurrence of corruption (Hamzah, 2004). In the "United Nations Convention Against Corruption" (UNCAC) of 2003, ratified by Law Number 7 of 2006, 18 categories of transnational crimes, including corruption, are categorized (Jimmy, Khoirur, 2021).

Corruption is an act that has harmful consequences for destroying life within society as it obstructs development. Therefore, corruption must be eradicated with the support of all components of the nation. The causes of corruption can be attributed to human factors such as needs, human behavior, or coercion. External factors can also influence the occurrence of corruption, such as the political and legal system in the state administration, weak supervision systems, and ineffective leadership. With the existence of extradition mechanisms, perpetrators can be brought back, including the assets obtained from corruption. The extradition mechanism is regulated by Law Number 1 of 1979 concerning Extradition (Darmono, 2012)

One of the crimes listed for extradition is corruption, regulated under number 30 in the Attachment to the Extradition Law. Extradition is carried out in accordance with ratified international agreements (Sompotan, 2016). In the efforts to counter corruption, the extradition agreement between Indonesia and Singapore proves beneficial in preventing perpetrators from escaping responsibility for their actions by fleeing to another country. It allows for the capture of criminals and the return of assets obtained through corruption. The existence of such an agreement provides assurance and serves as the foundation for cooperation between countries in addressing corruption (Fitri, Azam, 2019).

### **CONCLUSION**

The extradition agreement between Indonesia and Singapore will facilitate law enforcement authorities in Indonesia in resolving criminal cases involving perpetrators located in Singapore, enabling them to take action against the perpetrators. Extradition also

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prompts criminals to reconsider fleeing to another country, knowing that the destination country has entered into an extradition agreement. In the fight against corruption, the extradition agreement between Indonesia and Singapore provides benefits in preventing criminals from escaping to other countries, allowing for the apprehension of criminals and the return of assets acquired through corruption.

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## Evaluating the Efficacy of Pre-hospital Endotracheal Intubation in Cardiac Arrest: A Meta-Analysis.



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**ABSTRACT:** The optimal airway management strategy during cardiac arrest remains a subject of ongoing debate. This study aims to contribute to the literature on pre-hospital endotracheal intubation (ETI) during cardiac arrest by assessing its association with improved patient outcomes, specifically a higher incidence of return of spontaneous circulation (ROSC). Additionally, the study seeks to determine if ETI remains the best practice for airway management.

**Methods:** A comprehensive literature review was conducted using the Medline Complete and CINAHL Complete databases. The PICOT formula guided the selection of search terms, and a systematic search strategy was employed. Inclusion criteria focused on English-language, peer-reviewed, full-text articles published between 2010 and 2020, with a preference for studies conducted in pre-hospital settings. The search identified 78 eligible articles, with six high-quality studies included in the final analysis.

**Results:** The included articles, primarily from the United States, Europe, the United Kingdom, and Japan, involved a total of 341,286 participants. Meta-analysis results indicated no significant difference between ETI and control groups for 96.63% of pre-hospital cardiac arrests. The study participants received either ETI or basic airway management techniques, such as bag valve masks and supraglottic airway devices. The data suggests that ETI does not provide a substantial advantage over basic airway management techniques in terms of improving patient outcomes.

**Conclusion:** This meta-analysis supports the growing body of evidence suggesting that pre-hospital endotracheal intubation is not significantly associated with better outcomes in cardiac arrest cases compared to basic airway management techniques. While ETI is not linked to poorer patient outcomes, the study recommends further investigation to definitively confirm whether pre-hospital endotracheal intubation increases a patient's chances of survival after cardiac arrest.

**KEYWORDS:** Pre-hospital care, Endotracheal intubation, Cardiac arrest, Airway management, Return of spontaneous circulation, Meta-analysis

### 1. BACKGROUND

Best practices in advanced airway management strategies for both pre-hospital cardiac arrest and in-hospital cardiac arrest remain a topic of controversy and debate (1, 2). Specifically, the use of endotracheal intubation (ETI) as the primary means for airway management for cardiopulmonary resuscitation (CPR) during the treatment of a cardiac arrest has had significant inquiry relating to the intervention's association with a favourable outcome, such as the return of spontaneous circulation (ROSC), when compared to more conservative airway measures (1).

Endotracheal intubation has been considered the most advanced airway management technique and is used in many critical care environments such as in severe trauma situations, peri-operative procedures, and during resuscitation efforts (3). This is attributed to the technique's ability to optimally oxygenate, ventilate, and protect critically ill patients from aspiration during times of respiratory compromise or decreased levels of consciousness (4).

The modern use of endotracheal intubation in the pre-hospital setting has progressed in popularity since its conception in 1957 in Heidelberg, Germany (2). Historically, prehospital ETI was not available until a collection of emergency medical physicians commenced manning a pre-hospital mobile intensive care unit that provided a higher calibre of emergency medical service (EMS) to the population surrounding Heidelberg, Germany (2). Due to the documented success of life-saving outcomes, the use of ETI as an advanced airway management technique has quickly evolved and been engrained into modern EMS programs around the globe (5).



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With this evolution, dawned the introduction of specially trained emergency medical technicians branded as paramedics. Although not physicians, these paramedics were formally educated to be able to perform an advanced skill portfolio that rivals that of the physician within the pre-hospital context (5).

Early studies have concluded that following a comprehensive training program and on-scene physician supervision high rates of successful ETI were achievable by paramedics for both adult and paediatric patients. In most of these studies, a successful ETI was defined by the accurate anatomic placement of the endotracheal tube with the absence of significant complications (5). This definition is justified as endotracheal intubation when performed in the pre-hospital environment is associated with an array of detrimental complications that include tracheal tube misplacement, oesophageal intubation, vomiting aspiration, hypoxia, hypotension, cardiac arrhythmia, tracheal trauma, and dental damage (6). Although these early studies have indicated the positive effects of pre-hospital ETI in certain situations, a growing body of studies has revealed the detrimental effects of pre-hospital ETI or, at a minimum, that the advantages are insignificant (5, 7).

This study aims to contribute to the breadth of literature in the field of pre-hospital endotracheal intubation during cardiac arrest, to firstly, identify if an association between ETI and improved patient outcomes exist, such as higher incidences of the return of spontaneous circulation, and secondly, to determine if ETI remains the best practice for airway management.

### 2. SEARCH STRATEGY

When choosing the appropriate database to conduct a literature review from, it is important to evaluate the database by its appropriateness of the literature produced and by assessing the search systems used (8). This is an essential first step for meta-analysis research as the selection of relevant studies to sample determines a review's outcome, validity, and explanatory power (8). The key concepts used in the assessment of a database include its scope of accessible information and scale of recall or replication (9). For this literature review, The Medline Complete database and the CINAHL Complete database have proven worthy of producing a broad scope of credible literature within the healthcare context thus adequate to conduct the literature search for the proposed research question (10).

Following database selection, the search terms need to be contemplated to ensure the relevance of the results being produced. To achieve this, a PICOT formula was utilised to outline the key components of the hypothesis being tested (11). This was further refined and displayed in Table 1 to determine the most appropriate terminology to be used.

<b>Keywords/search terms/phrases</b>		<b>Alternative words/terms considered</b>
<b>P</b>	Pre-hospital patients	out of hospital/ community; victims/ people/ cases.
<b>I</b>	Intubation during cardiac arrest resuscitation	Advanced airway/ endotracheal tube/ tubing; during a heart attack/ cardiopulmonary resuscitation/ CPR.
<b>C</b>	No intubation during cardiac arrest resuscitation	Advanced airway/ endotracheal tube/ tubing; during a heart attack/ cardiopulmonary resuscitation/ CPR.
<b>O</b>	Ascertain if there is a relationship between the intervention and cardiac arrest survival rates.	Intubation improves/reduces the chances of cardiac arrest survival.
<b>T</b>	During the time frame of 2010-2020	20100101-20200921

From this, select Boolean operators and truncation methods were used as a strategic means to produce the maximum search results for possible inclusion whilst remaining within the desired search field (12). This resulted in the following action:

*(Patient\* OR case\*) AND ("cardiac arrest" OR resus\* OR treat\*) AND ("pre-hospital" OR "out-of-hospital") AND (intubation OR "endotracheal tube" OR "advanced airway")*

### 3. INCLUSION AND EXCLUSION CRITERIA

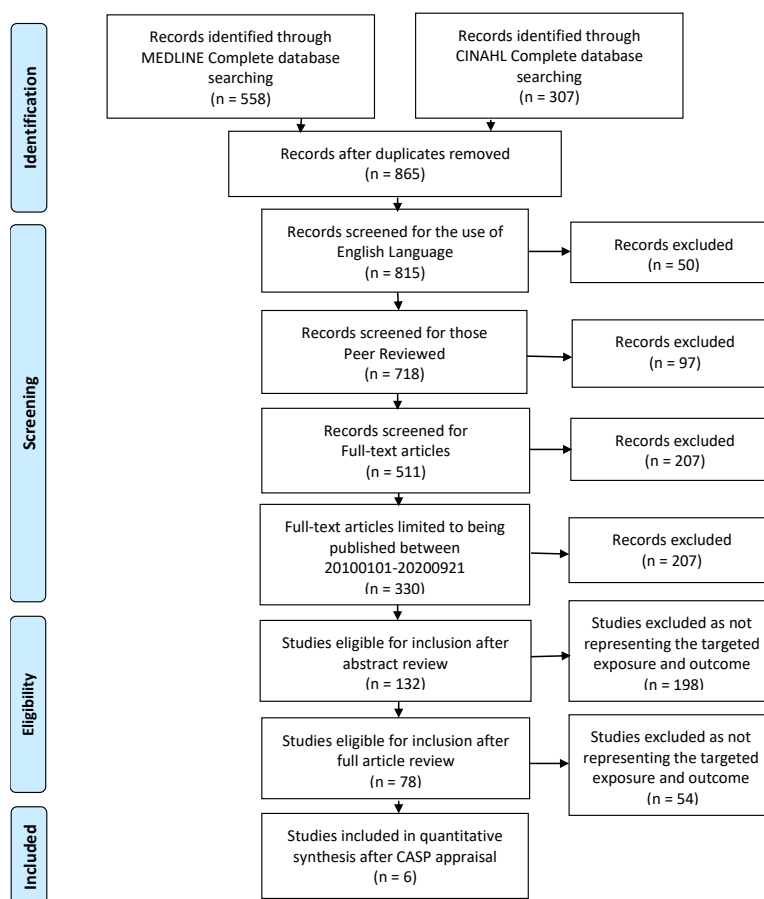
Inclusion screening was possible by using the search engine limiters for literature published in the English language for the ability to read, peer-reviewed full-text academic journals to ensure quality and relevance and published since 1st January 2010 producing a ten-year timeframe. This duration was selected as it commences shortly before the consensus of Fevang et al. (2) who identified

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advanced airway management, such as endotracheal intubation, as one of the top five research priorities in pre-hospital critical care. It should be noted that, although considered, the geographical location or the number of participants within the study was not used as an inclusion or exclusion criterion.

Inclusion into the literature review was permitted following the article was not excluded during the screening process. Furthermore, the literature must be in the pre-hospital or similar setting, contain intubation or terms implying the key exposure of interest, include cardiac arrest or terms implying the primary treated condition, and include the participant's survival status such as the achievement of the return of spontaneous circulation. Furthermore, the literature must be of a case-control quantitative study design to ensure the consistency of terms and figures used throughout.

The following PRISMA Diagram (13) represents the process listed above within the Search Strategy. The diagram displays the stages of literature searching, the quantity, and the type of literature included and excluded from the review.



## 4. RESULTS

During the preliminary literature search, 865 articles were identified. No duplicates required elimination. Of these, initial screening meant 50 articles were excluded as not published in the English language, 97 were excluded as not being peer-reviewed, 207 were excluded as not being a full-text article, and 207 were excluded as published before 1st January 2010. Subsequently, 330 papers were further screened by reading the abstracts to determine if the eligibility for inclusion was met. This process found 198 articles which were not included because of noncompliance with the inclusion criteria. During the selection stage, 132 articles were fully reviewed and a further 54 articles were excluded because of noncompliance with inclusion criteria.

In total, 78 articles were considered as eligible for inclusion in the literature review. These articles were published between April 2010 and May 2020, and their research was predominantly published in the United States of America (n=41), followed by Europe (n=20), the United Kingdom (n=12), and Japan (n=5). Study quality was evaluated using the Critical Appraisal Skills Programme (14) appraisal methodology. From this, six of the highest-quality articles were included in the present literature review. This was sufficient due to the high volume of participants included in the overall review.

### Included Articles

1. Wang HE, Benger JR. Endotracheal intubation during out-of-hospital cardiac arrest: New insights from recent clinical trials. *Journal of the American College of Emergency Physicians Open*. 2019;1(1):24–9. doi:10.1002/emp2.12003.

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- Jabre P, Penaloza A, Pinero D, Duchateau F-X, Borron SW, Javaudin F, et al. Effect of bag-mask ventilation vs endotracheal intubation during cardiopulmonary resuscitation on neurological outcome after out-of-hospital cardiorespiratory arrest. *JAMA*. 2018;319(8):779. doi:10.1001/jama.2018.0156
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The following details the included articles with the characteristics of each article outlined in Table 2.

	<b>Author; Year Published; Country</b>	<b>Study Design</b>	<b>Number of Participants</b>	<b>Setting of Participant</b>	<b>Control Group Exposure</b>	<b>Finding in favour of</b>
1.	Wang et al; 2018; USA	Cluster-crossover randomized trial	Total = 3004 ETI = 1499 Control = 1505	Non-traumatic Cardiac arrest	Laryngeal tube	Control Group
2.	Jabre et al; 2018; USA	Randomized parallel-group trial	Total = 2043 ETI = 1023 Control = 1020	Non-traumatic Cardiac arrest	Bag Valve Mask	No significant difference
3.	Bramer et al; 2015; Germany	Registry-based case-control analysis	Total = 8512 ETI = 657 Control = 1855	Traumatic and Non-traumatic Cardiac arrest	Supraglottic airway devices	ETI intervention
4.	Yuksen et al; 2020; USA	Retrospective analytical study	Total = 1070 ETI = 270 Control = 800	Traumatic and Non-traumatic Cardiac arrest	Bag Valve Mask	No significant difference
5.	Wang et al; 2019; USA	Meta-analysis of RCTs	Total = 16,037 ETI = 7,361 Control = 14,836	Traumatic and Non-traumatic Cardiac arrest	Bag Valve Mask (n=1201) and Supraglottic airway devices (n=7475)	No significant difference
6.	Izawa et al; 2019; England	Cohort study	Total = 310, 620 ETI = 130,349 Control= 180,271	Traumatic and Non-traumatic Cardiac arrest	Supraglottic airway devices	No significant difference

In total, 341,286 patients were included of which 140,502 received endotracheal intubation and 200,784 were treated as controls. All six studies evaluated the efficacy of ETI in improving the return of spontaneous circulation in pre-hospital cardiac arrests. With reference to the number of study participants, the meta-analysis has demonstrated that there is no significant difference between ETI and a control population for 96.63% of pre-hospital cardiac arrests. This is significant as the data suggests in favour of ETI at 2.49%, and in favour of the control at 0.88%. For the control exposure, supraglottic airway devices inclusive of laryngeal tubes, were utilised in four studies compared to bag valve masks in three. This highlights that ETI when compared to basic airway management techniques is inefficient in providing significantly better patient outcomes.

### 5. CONCLUSIONS

In conclusion, the literature review conducted supports the currently growing body that suggests that pre-hospital intubation is not associated with a significant advantage over basic airway management techniques in the treatment of cardiac arrest (5). The review does however demonstrate that, although not of significant benefit, ETI is not likely to be associated with poorer patient outcomes when compared to bag valve masks and supraglottic airway devices. As a result, it can be concluded that further investigation is required to definitively confirm that pre-hospital endotracheal intubation increases a patient's chances of survival after a cardiac arrest.

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**Author Statement:** This study did not require ethical approval as it involved a retrospective analysis of publicly available and anonymized data, with no direct involvement of human subjects.

**Declaration of Interest:** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Ungoverned, Unfair, Unacceptable: A UN Solution to Refugee Distribution



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**ABSTRACT:** This article addresses the pressing issue of refugee and asylum seeker distribution, highlighting the flaws in current policies that rely on a limited number of countries to bear the burden of refugees. It proposes a globally unified approach coordinated by the United Nations, utilizing an algorithm based on GDP, population density, and habitable land size to ensure equitable distribution. The paper emphasizes the importance of a comprehensive strategy that includes incentive-based systems, long-term planning, and holistic assessments to create a fair and humane refugee distribution process.

**KEYWORDS:** refugee distribution, United Nations, global refugee crisis, equitable distribution, humanitarian aid strategy

### 1. INTRODUCTION

Although the terms refugee and asylum seeker are often used synonymously, there are key differences between the two; both asylum seekers and refugees are those who have left their country seeking protection from persecution, yet the key difference is that an asylum seeker is awaiting to be legally recognised as a refugee which grants them with international protection (1). Awaiting a visa, these people are held in detention facilities both within and outside Australia for an average of 806 days (January 2023) (2) where they are forced to endure sparse and subpar access to healthcare, affecting them both mentally and physically.

In this article, we will suggest a range of policies dedicated to alleviating and bettering the abysmal situation of these already vulnerable groups. These policies are underpinned by the following principles; coordinating a globally unified approach to the refugee issue; and distributing refugees to countries based on important factors such as geographical proximity, and GDP amongst other factors.

The aforementioned principles will be used to address the issues of the current lack of regulation surrounding the intake of refugees requires a systematic level of governance and regulation which we posit should be overlooked by world organisations such as the United Nations; and when coordinating policies targeted at refugee relief and equitable distribution for countries, important factors such as GDP, population, habitable land mass and proximity to nearby countries with people seeking refuge must be considered.

### 2. DISCUSSION

#### I. The current ungoverned refugee distribution is unacceptable.

The current situation of refugees around the world shows uneven distribution amongst countries. Certain countries have significantly larger amounts of refugees than other countries, with trends such as geographical accessibility to refugees favouring a greater amount of refugees (4). Some countries have refugees exclusively from a certain group, such as a specific race or religion, and will actively turn away refugees who do not fall within this category. Ultimately, due to a lack of equity in distribution and potential favouritism and bias when selecting which refugees to take in, the current distribution of refugees is inherently flawed. The majority of the world's refugees reside in their neighbouring countries. Five countries alone (Turkiyë, Iran, Colombia, Germany and Pakistan) hold 38% of the world's refugees, while 70% of refugees are hosted in neighbouring countries (5). This suggests an unfair association with the number of refugees and proximity to their country of origin. This effectively means that nations that have the means of housing a multiplicity of refugees but are geographically inaccessible to refugees, will bear no role in housing said refugees. This association is not necessarily a rule since Canada, which is geographically distant from all the current refugee hotspots of the world, houses a large number of refugees (4). Compare this to Australia, which shares the financial prosperity of

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Canada but does not share in its number of refugees (6). If countries such as Australia, with the means of housing refugees, increased their intake then there would be fewer refugees in the countries that are currently housing them in large amounts. It is also important to consider the dangers of having too large amount of refugees in one country, such as overcrowding refugee camps, which present their problems such as health issues and violence towards women (7).

An interesting example of neighbouring countries housing the most refugees is Germany. Despite being geographically isolated from refugee hotspots such as Syria, Germany took in 1 million refugees using busses to carry the refugees across borders. Since this gargantuan influx of refugees, over half of them are now employed and 72% have been granted protection. This attests to the success of Germany's decision to take so many refugees from lands far from home, showing that geographical inaccessibility is not an excuse to not take in appropriate amounts of refugees. (5)

While each country reserves its right to autonomy to take refugees in, discrimination against certain groups of refugees over others should not be tolerated. Refugees come from all parts of the world, belonging to various races, ethnicities, languages, religions and other groups. There is the argument that integration is easier when the refugees share identities with the country they move to. For example, a refugee from a French-speaking country may find it significantly easier to integrate into France rather than Spain based on language alone. However, it can lead to certain groups being effectively "shunned" from certain countries. A prime example is Poland, which has opened its arms warmly to refugees from Ukraine while simultaneously demonstrating abuse and inhospitality towards Syrian refugees (8). Consequently, there must be a model that balances a country's autonomy to reject refugees with accountability for rejected refugees. Regardless of a country's decision on whether to take refugees, abuse should not be tolerated.

A recurring example of successful integration of refugees is Germany, whose 1 million refugees reported an insignificant 1% already speaking German (9) at the time of entering Germany. Now this same group of refugees have over 44% speaking proficient German, with higher levels of education than other migrants (9). Ultimately, while there have been some examples of success such as Germany and Canada, the distribution and favouritism towards certain refugees is still apparent. The current system is inherently flawed if partial success rests entirely on a few successful countries carrying the global responsibility of supporting refugees.

### **II. A United Nations-organised refugee distribution system will ease global refugee burdens.**

The principal notion that the refugee problem is a matter of concern requiring international cooperation and burden-sharing was first highlighted in the wake of the First World War. Due to the succeeding waves of European refugees fleeing the aggressor occupation, the League of Nations 1920 - 1946, also known as the 'predecessor' of the United Nations (UN) (10), was established to coordinate and manage humanitarian efforts (11, 12). This concept was further evident in the aftermath of the Second World War attributed to the millions of refugees requiring assistance. From this, the UN temporarily established a dedicated Refugee Agency expected to operate between 1950-1953 before its planned disbandment. However, due to new refugee crises unfolding globally requiring several service extensions, the UN Refugee Agency (UNHCR) was given permanency in 2003 (13). Since then, the UNHCR has been at the forefront of the global refugee crisis steadily assembling a set of guidelines, laws and conventions aimed at protecting the basic human rights and treatment of people forced to flee conflict and persecution (11).

The Global Trends - Forced Displaced in 2022 (14) report details that the United Nations administrates 35.3 million refugees under two agency mandates, the UNHCR and the UNRWA. This figure represents a 35 per cent increase from the previous year and remains consistent with the climbing trends of the past decade. Unfortunately, as aforementioned, the global refugee burden appears concentrated in only a few of the 28 countries scribed as contributing stockholders in the United Nations Refugee Convention 1951 (15). Accredited to its now vast network of humanitarian infrastructure, its data and logistical capability, and its unique position of having contributory governments signed to obligation, the United Nations should be the universal controlling agency for the equitable distribution of refugees thus reducing the burdens of concentration.

To ensure a cohesive transition of the system, it is proposed that the United Nations be redefined as a paternalistic entity ensuring the responsibilities of the 28 signed governments are monitored and reprimanded if a 'breach of promise' has occurred or when the central dogma of basic human rights is conflicted. Concerningly, due to an apparent lack of universal authority, recent publications display such dogma conflict reporting on certain governments' considerations to send asylum seekers abroad for processing. Although in objection, the UN Refugee Agency has urged countries not to externalise their asylum and protection obligations and warns that such practices endanger the safety of those in need of international protection (16), at present the UNHCR has negligible capability to contest such considerations.

Following the formation of leadership, a Refugee Distribution System can be assembled to safely assess, process, and facilitate the voluntary relocation and integration of refugees to agreed countries in a manner both respectful and supportive of the individual whilst also just for the receiving country. Several humanitarian advantages can be present if one agency is coordinating



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the global effort such as allowing for appropriate data collection and tracking supporting familial aspects such as reunion. Additionally, it can allow for integration with other UN agencies such as those involving healthcare or education, and lastly, it can ensure the concept of equity remains paramount throughout the system whole. These ideologies are echoed by the UNHCR which remains firmly opposed to externalisation initiatives that forcibly transfer people to other countries as this practice simply shifts responsibilities elsewhere; evades the country's moral and international obligations; and seamlessly undermines the basic human rights of those seeking safety and protection (16).

In short, there is a well-illustrated need for a universal authority, organisation, or agency to outline, orchestrate, and enforce the moral and contractual obligations encompassing refugees and their perceived burden in the global scheme. Since the expansion of the humanitarian field, the United Nations has remained a well-defined presence with an explicit declaration of unity and equity for all. Stemming from this, it is simply clear that the United Nations is the credible entity for such tasking to ease global refugee burdens.

### III. Recommendations for Action.

Different nations have differing capabilities to provide aid and protection to refugees which poses an ethical dilemma that warrants a systematic, fair and pragmatic solution. This argument puts forth a proposition that member states of the United Nations (UN) make a commitment to supporting refugees concordant with an algorithm that incorporates nations' Gross Domestic Product (GDP), population density, and habitable land size. Before discussing the importance of the aforementioned criteria in determining a nation's capacity to provide refuge, it is crucial to understand what requisites should be in place to ensure the basic human rights, physical, economic, and social security of refugees. According to the UN Refugee Agency (UNHCR), refugees should, as a minimum, receive the "same rights and basic help" as any other foreign legal resident (17). This includes fundamental facets of life such as access to food and water, shelter, medical care, education and occupational opportunity.

The economic prosperity of a nation is inherently linked to its ability to provide humanitarian aid to refugees and thus it is important that nations should accept a proportional share of the refugee load depending on their GDP. Typically, a higher GDP reflects increased economic output and thus greater financial resources that can be allocated toward humanitarian aid such as funding for basic care of refugees and grants to increase accessibility to education, work and medical care. For example, the correlation between a country's GDP per capita and average years of schooling provides a clear sign that, in the presence of equal opportunity for education for refugees and legal residents, an increased GDP per capita reflects an increased average year of schooling (18). Furthermore, it was found that 38% of refugees were hosted in just five countries with Turkey and Iran taking approximately 7 million refugees between them (19). When comparing this to their rankings of 19 and 43 respectively (20), it shows that the distribution of refugees is inappropriately skewed and requires intervention to shift the load on to countries that are more economically prosperous.

The demographic dimensions of a country are also important in working towards a more balanced and fair distribution of refugees. Certain nations that are more populated possess an increased ability to integrate refugees, lessening the strain on countries with limited societal frameworks. However, countries that are too heavily populated may not be able to take too many refugees without experiencing a burden to their ability to allocate resources. Thus, there is a balance that must be accounted for when allocating refugees to countries based on population size. The availability of habitable land is closely linked to the population for the successful integration of refugees into society and for appropriate living conditions. The importance of this parameter is clearly seen in Australia, which has an extremely low population density of 3.4 people per square kilometre but approximately 90% of this population occupies just 0.22% of Australia's landmass (21). This is due to the large amount of uninhabitable land and is a key reason for why nations that boast larger areas of habitable terrain should embrace larger shares of the global refugee load.

In addition to this algorithm for distributing refugee loads, we recognize the critical importance of addressing various facets of the refugee crisis through a comprehensive approach. The UN's commitment should extend beyond just numerical allocation, and it must consider a range of factors to create a fair and effective distribution process.

An innovative strategy that should be used by the UN is the implementation of incentive-based systems. This can include offering trade benefits, concessions, or preferential agreements to host countries. By combining refugee acceptance with economic incentives, nations may be motivated to participate in a more equitable distribution of the refugee population. This approach acknowledges the multidimensional nature of the refugee crisis by seeking to appease the interests of host countries while also satisfying the goal of sharing the refugee burden.

To maintain a sustainable approach to refugee management, long-term planning is critical. We propose that the UN must develop comprehensive, forward-looking plans that account for more than just immediate placement. These plans should emphasise social integration, understanding that refugees are not numbers to be allocated, but people seeking a new life and they must be given a chance to contribute positively to their host countries.

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Lastly, we propose that the UN should use holistic assessments when distributing refugees, in line with its commitment to human rights. This means that refugee distribution must be based on a multifaceted evaluation that encompasses not only numerical considerations but also detailed consideration of the host country's human rights standards and geopolitical stability.

To summarise, we put forward that the UN's approach to refugee distribution must extend beyond the proposed algorithm, reflecting a comprehensive and empathetic strategy. By implementing incentive-based systems, long-term planning, and holistic assessments, we aim to create a more flexible, fair, and humane refugee distribution process that will uphold the dignity of refugees, create global cooperation, and ensure that the refugee burden is shared justly throughout the world.

### 3. CONCLUSIONS

To conclude, when looking at the evidence, it becomes apparent that the issue of refugee and asylum seeker help and distribution is an ongoing issue that requires the coordination of new and/or amended policies in order to address it. If more positive outcomes are to be achieved, the following changes must be considered.

I. Current policies are flawed because they rely on a select number of countries to take on the onus and bear the brunt of refugee distribution, irrespective of their financial, geographical means etc. This paper outlined the importance of a more globally unified effort which would allow for a more equitable distribution. Beyond this, it is reasonable to believe that a more spread-out delegation of refugees and asylum seekers would alleviate other issues such as overcrowding and violence targeted towards women, both of which have significant secondary health impacts.

II. This paper also outlined the importance of selecting an organisation with the global and legislative power to enforce the policies previously mentioned. Delegating this power to a global organisation would make countries accountable whilst also giving members within the committee to represent their individual nations and voice any concerns they may have. In accordance with the global and legislative necessities, we have deemed the United Nations a suitable organisation for this role.

III. Due to the magnitude and ongoing nature of these issues it is also imperative that policymakers take into account individual nation's long-term capacity for refugee hospitality. Financial factors (gauged by a nation's GDP), as well as geographical measures (habitable land mass), are two obvious factors that must be considered.

Overall, refugee and asylum seeker health has been inadequately addressed by current policies due to two main shortcomings: the first being a lack of a global and equitable effort and a lack of a governing authority. To ensure that future policies are more effective there must be an overseeing global organisation that fairly delegates refugee numbers after taking into consideration countries' financial and geographical means.

**Author Statement:** The authors would like to acknowledge the ethical considerations taken into account during the development of this position statement. We affirm our commitment to upholding the highest standards of research ethics, including transparency, accuracy, and fairness.

We would like to express our gratitude to all those who contributed to this position statement, either directly or indirectly, and to the broader community working towards addressing the critical issue of refugee and asylum seeker distribution.

**Declaration of Interest:** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Effect of Giving Black Seed (*Nigella Sativa* L) On IL-10 Levels, And CRP Levels (Experimental Study on Wistar Strain Male White Rats Induced By A High Fat Diet)



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**ABSTRACT:** Dyslipidemia is a disease that often occurs in Indonesia. The impacts of this disease include inflammation and various types of cytokines. This study aimed to determine the effect of Black Seed on Interleukin 10 levels and CRP levels in rats induced by a high-fat diet. This research is a posttest-only control group type of research. Twenty-five male white Wistar rats were taken as samples and divided into 5 groups: K0 (pellets and water), K – (high-fat diet), K + (high-fat diet + simvastatin 1.8 mg/day), P1 (high-fat diet + Black Seed 3 ml/KgBB), P2 (high-fat diet + black seed 4 ml/KgBB). The data required in this study was obtained through the ELISA test. The collected data was analyzed using one-way ANOVA and post hoc LSD test. From the results of the analysis carried out, it was found that (1) the difference in mean IL-10 levels between groups was significant with a p-value <0.05; (2) The difference in average CRP levels between groups where K0, K-, and P1 is significant, while between K (+) and P2 is not significant with a p>0.05. Administration of Black Seed affected IL-10 levels and CRP levels in white mice induced by a high-fat diet.

**KEYWORDS:** High fat diet, IL 10, CRP, Black Seed

### I. INTRODUCTION

*Dyslipidemia* is a condition characterized by increased levels of total cholesterol, blood fat, LDL cholesterol, and decreased levels of HDL cholesterol, which in the long term can cause chronic inflammation and the formation of atherosclerotic plaque, which is the main cause of coronary heart disease. Traditional statin treatment can lower cholesterol levels, but long-term use often causes side effects such as myalgia, rhabdomyolysis, and myositis. The development of alternative therapies with natural ingredients such as black seed oil (*Nigella sativa* L) in reducing blood lipid levels has been widely carried out, but further research on the role of black seed in treating chronic inflammation in dyslipidemia conditions is based on levels of Interleukin-10 (IL 10) and C-Reactive Protein (CRP) as a marker of inflammation still needs to be done. In Indonesia, the high prevalence of dyslipidemia is a major risk factor for cardiovascular disease, especially Coronary Heart Disease (CHD). Habbatussauda has potential as an antioxidant and anti-inflammatory thanks to the content of active substances such as flavonoids and thymoquinone (TQ). Previous research shows that black seed can increase levels of IL-10, which acts as an inflammation regulator, and reduce levels of MDA and NO. Apart from that, Black Seed can also regulate pro-inflammatory cytokines such as IL-1 $\alpha$ , IL-2 $\beta$ , and IL-6 and reduce inflammation in various conditions. However, research on the effect of Black Seed in inhibiting chronic inflammation in dyslipidemia by measuring IL-10 and CRP levels in male Wistar rats induced by a high-fat diet still needs to be deepened<sup>1-15</sup>.

This study aimed to evaluate the effect of Black Seed on IL-10 (Interleukin-10) levels and CRP (C-Reactive Protein) levels in male Wistar rats that had been induced with a high-fat diet. This study aimed to understand how Black Seed affects IL-10 and CRP levels in these conditions. Additionally, specific objectives involve measuring mean levels of IL-10 and CRP and analyzing mean differences between different groups to understand the potential impact of Black Seed on the inflammatory response in the body of mice exposed to a high-fat diet.

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## II. MATERIAL AND METHOD

### Study Design and Experimental Animals

This type of research is a laboratory experiment using a post-test-only control group design with male Wistar white rats given an induction diet high in fat and black seed simultaneously. The subjects were male Wistar rats with a body weight of 180-220 grams, intensively developed and maintained at the UGM Yogyakarta Center for Food and Nutrition Studies according to inclusion and inclusion criteria. Samples were obtained through Randomized Sampling Allocation, which will be adapted for 7 days. A total of 25 male Wistar rats that met the research inclusion criteria were randomly divided into 5 groups : healthy group without treatment and given standard feed (K0), negative control group, namely given a high-fat diet induction for 4 weeks without giving Black Seed (K-), positive control group, namely given a high-fat diet induction with simvastatin 1.8 mg/day for 2 weeks (K+), the treatment group was given a high-fat diet induction by administering black seed oil 3 ml/kgBB for 2 weeks (P1), and the treatment group was given a high-fat diet induction by administering black seed oil 4 ml/kgBB for 2 weeks (P2). In the fifth week after treatment, IL-10 and CRP levels were measured using the ELISA method from blood samples taken via the orbital vein.

### Research Materials

The research material consists of male Wistar rats with body weight characteristics ranging from 180 to 220 grams and 8 weeks of age, standard feed (COMFEED AD II from PT. Japfa Comfeed Indonesia), additional feed consisted of 2% cholesterol and 9 grams of saturated fat, aquades, and black seed oil.

### Research Equipment

This study used several equipment, including a rat cage with appropriate places to eat and drink, special water bottles for rats, hematocrit tubes, injection syringes, sondes, digital scales, masks, sterile gloves, and laboratory equipment such as a microplate reader was used along with a CRP-level examination kit and an IL-10-level examination kit.

### How to Prepare Before Treatment

The research material involved 25 male Wistar rats with body weight characteristics ranging from 180 to 220 grams and 8 weeks of age as research subjects. These rats were given standard feed COMFEED AD II from PT. Japfa Comfeed Indonesia, Tbk as their main food. In addition, to induce a high-fat diet, additional feed consisted of 2% cholesterol and 9 grams of saturated fat, which was mixed into the rat's feed and converted into pellet form and given for 4 weeks. Drinking water is provided freely using Aquades.

### How to Induce a High Fat Diet Condition

A high-fat diet was prepared by mixing 2% cholesterol and 9 grams of saturated fat into rat feed, which was then converted into pellets and given for 4 weeks. In the third and fifth weeks, lipid profiles such as total cholesterol, HDL, and LDL levels were assessed.

### How to Give Black Seed Oil Dosage

Black Seed (Black Seed oil) is given in capsule form from PT. Habbasyi Niaga Utama Depok, Indonesia, and the feeding was carried out for 14 days after being fed a high-fat diet. Black Seed oil is given orally in various doses, 3 ml/KgBB and 4 ml/KgBB, measured in millilitres (ml).

### IL-10 and CRP levels Measurement Procedure using ELISA kit

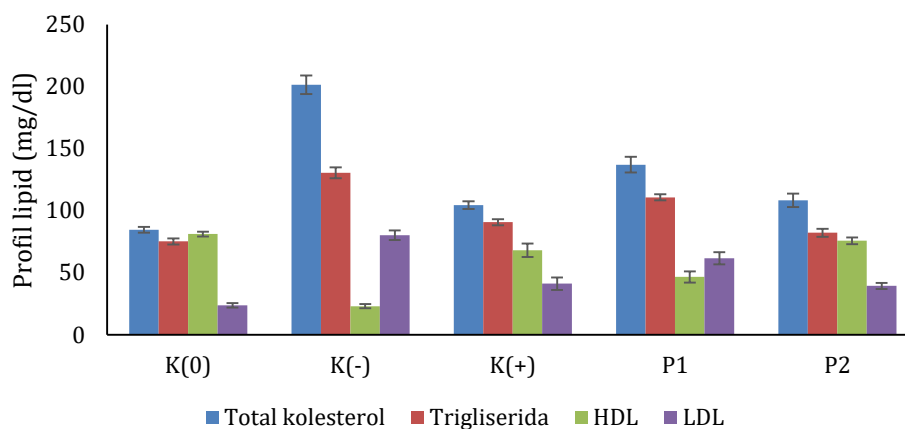
The blood sampling technique was carried out carefully, involving holding the rat and collecting blood from the orbital vein using a microhematocrit. IL-10 levels were measured using the ELISA method after blood plasma was homogenized. CRP levels were also measured using the ELISA method after separating the serum from the blood sample via centrifugation. IL-10 and CRP (C-Reactive Protein) levels in the blood of experimental animals are also expressed in ng/L units and measured using the ELISA kit rat CRP method at PAU UGM by a laboratory analyst assistant.

## III. RESULT

Research on the effect of Black Seed on IL-10 levels and CRP levels was carried out at PAU UGM Yogyakarta and the Faculty of Medicine Unissula Semarang from 10 July to 15 August 2023. The research subjects consisted of 25 male white rats of the Wistar strain, which were divided into five groups randomly, namely one the healthy control group (K(0)) and four other groups (K(-), K(+), P1, and P2) were induced on a high-fat diet for four weeks by providing feed containing 2% cholesterol and 9 grams of saturated fat in pellet form. During the last 14 days of induction, group K(+) received simvastatin of 1.8 mg/day, while P1 and P2 were given Black Seed oil at doses of 3 ml/kgbb and 4 ml/kgbb, respectively. In the fifth week after treatment, IL-10 and CRP levels

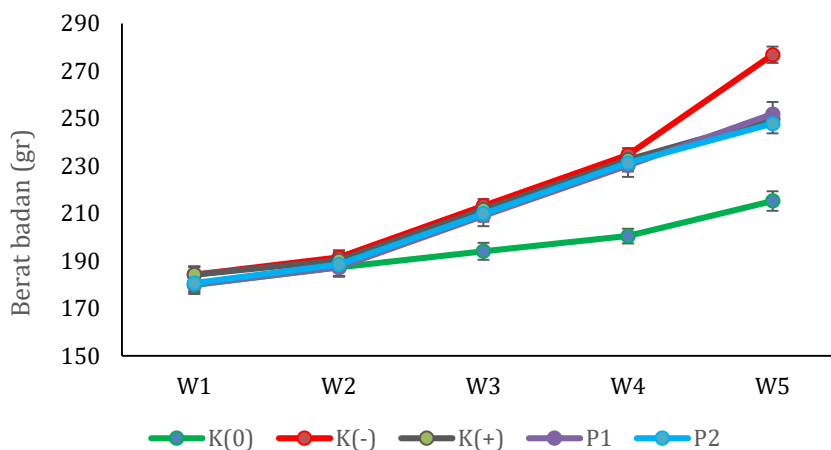
## Effect of Giving Black Seed (*Nigella Sativa* L) On IL-10 Levels, And CRP Levels (Experimental Study On Wistar Strain Male White Rats Induced By A High Fat Diet)

were measured using the ELISA method from blood samples taken via the orbital vein. The high-fat diet induction aimed to create a model of dyslipidemia, which was confirmed by examination of the lipid profile in the second post-induction week and at the end of the study. During the study, monitoring the rats' body weight was also carried out, the results of which were recorded for further analysis.



**Figure 3. Line chart of the average lipid profile of rats between groups at the end of the study period (fifth week)**

Figure 3 shows that at the end of the study, mice in the K(0) group had the highest levels of total cholesterol, triglycerides and LDL and the lowest HDL compared to the other four groups.



**Figure 4. Line chart of average body weight of mice between groups for 5 (five) weeks**

Information: W1 = BW after 7 days of adaptation, W2 = BW 1 week after high fat diet induction, W3 = BW 2 weeks after high fat diet induction, W4 = BW 3 weeks after high fat diet induction + treatment, W5 = BW 4 weeks post induction high fat diet + treatment

Figure 4 shows that the mice's average weight increased from the second week (W2) to the fifth week (W5) for each group. The increase in weight in K(0) was the lowest every week. In the group (K-), there was an increase in weight, which was relatively similar to K(+), P1 and P2 until the fourth week (W4). In the fifth week, the average weight in K(-) increased the most, while in K(+), P1 and P2, the increase was relatively similar and lower than in K(-). Rats induced by a high-fat diet appear to be obese because the average weight reaches > 220 grams.

As for the results of measuring IL-10 levels and CRP levels in male white Wistar rats induced by a high-fat dissemination diet, namely:

### IL-10 levels

An overview of the mean IL-10 levels in each group along with the results of the analysis of normality of data distribution, homogeneity of variance, and mean difference tests between groups is shown:



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**Table 1. Results of mean analysis, normality test, homogeneity test and test for differences in IL-10 levels between groups**

IL-10 Levels (pg/mL)	Groups					p-value
	K(0)	K(-)	K(+)	P1	P2	
Mean±SD	111,41±4,40	31,52±2,45	82,45±3,53	60,31±2,44	89,61±4,07	
Shapiro Wilk*	0,118	0,740	0,995	0,823	0,900	
Levene test						0,791
One way anova						<0,001

Information: \* = p-value

The study found that the highest IL-10 levels were in the K(0) group, namely  $111.41 \pm 4.40$  pg/mL and the lowest in K(-),  $31.52 \pm 2.45$  pg/mL. In the Shapiro-Wilk test on IL-10 levels in the five groups, the p-value was  $> 0.05$ , which means the IL-10 level data was normal. IL-10 levels in the five measurements were also homogeneous, as indicated by the p-value from the Levene test, namely 0.791 or  $p > 0.05$ . The requirements for data normality and homogeneity of changes were met so that the average correlation of IL-10 levels between the five groups was broken down using a one-way ANOVA test, and a p-value  $< 0.001$  was obtained so that it was stated that there was a very large influence. contrast of mean IL-10 levels between groups K(0), K(-), K(+), P1 and P2.

Using a post hoc LSD test, further differences in mean IL-10 levels between the five groups were significant, as shown in Table 2.

**Table 2. The results of the comparative analysis of the mean IL-10 levels between the two groups**

Group comparison	p
K(0) vs K(-)	<0,001
K(0) vs K(+)	<0,001
K(0) vs P1	<0,001
K(0) vs P2	<0,001
K(-) vs K(+)	<0,001
K(-) vs P1	<0,001
K(-) vs P2	<0,001
K(+)	<0,001
K(+)	<0,001
P1 vs P2	0,004

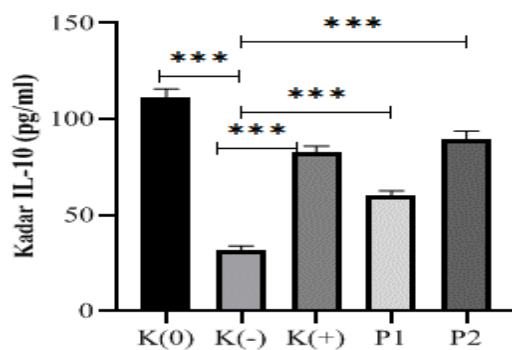
\* = significantly different ( $p < 0,05$ )

Comparison of the mean IL-10 levels between the two groups was significant, as indicated by the p-value of the LSD post hoc test, each of which was below 0.05 ( $p < 0.05$ ). The results of the LSD post hoc test showed that the treatment given had a significant effect on IL-10 levels. IL-10 levels at K(-) were significantly lower than K(0), indicating that induction of a high-fat diet reduced IL-10 levels. IL-10 levels in K(+), P1 and P2 were significantly higher than in K(-), indicating that simvastatin and Black Seed oil doses of 3 ml/kgbb and 4 ml/kgbb affected increasing IL-10 levels in mice treated with induced by a high-fat diet.

IL-10 levels in P1 and P2, which were significantly lower than K(+), showed that simvastatin administration was more effective in increasing IL-10 levels in rats induced by a high-fat diet than Black Seed oil doses of 3 ml/kgbb and 4 ml/kgbb. IL-10 levels in P1, significantly lower than P2, showed that administering Black Seed oil at 4 ml/kgbb was more effective in increasing IL-10 levels in rats induced by a high-fat diet than a dose of 3 ml/kgbb. IL-10 levels in K(+), P1 and P2 were significantly lower than in K(0), showing the effect of simvastatin or Black Seed oil 3 ml/kg and 4 ml/kg on IL-10 levels in rats induced by a high-fat diet not optimal.

Comparison of IL-10 levels between the two groups can also be seen in Figure 5.

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Keterangan: \*\*\* = p<0,001

**Figure 5. Graph of average IL-10 levels between groups**

**CRP levels**

An overview of the average CRP levels in each group along with the results of the analysis of normality of data distribution, homogeneity of variance, and the mean difference test between groups is shown in Table 3.

**Table 3. Results of the mean analysis, normality test, homogeneity test and test for differences in CRP levels between groups**

CRP Levels (pg/mL)	Groups					p-value
	K(0)	K(-)	K(+)	P1	P2	
Mean±SD	0,74±0,02	2,28±0,01	0,83±0,01	1,08±0,01	0,85±0,03	
Shapiro Wilk*	0,611	0,493	0,634	0,313	0,958	
Levene test						0,052
One way anova						<0,001

Information: \* = p-value

The study results found that the highest CRP level was in the K(-) group, 2.28 ± 0.01 ng/mL and the lowest was in K(0), 0.74 ± 0.02 ng/mL. In the Shapiro-Wilk test for CRP levels in the five groups, the p-value was > 0.05, meaning the CRP level data is normal. CRP levels in the five measurements were also homogeneous, indicated by the p-value of the Levene test, which was 0.052 or p>0.05. The one-way ANOVA test shows that there is a significant difference in average CRP levels between groups K(0), K(-), K(+), P1 and P2 with a p-value of less than 0.001 which indicates normal data distribution requirements and homogeneity of variance. Fulfilled. Large differences in mean CRP levels between the five groups were also examined using the LSD post hoc test, and the results obtained in Table 4 or Figure 5.

**Table 4. The results of the comparative analysis of the mean CRP levels between the two groups**

Group Comparison	p
K(0) vs K(-)	<0,001
K(0) vs K(+)	<0,001
K(0) vs P1	<0,001
K(0) vs P2	<0,001
K(-) vs K(+)	<0,001
K(-) vs P1	<0,001
K(-) vs P2	<0,001
K(+)	<0,001
K(+)	0,071
P1 vs P2	<0,001

\* = significantly different (p<0,05)

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The results of the analysis of the comparison of mean CRP levels between the two groups showed that most of the comparisons were significant, with the p values from the LSD post hoc test all being below 0.05 ( $p < 0.05$ ), except for the comparison between K(+) and P2 with values p was 0.071 ( $p > 0.05$ ). The results of this test confirm that the treatment given has a significant influence on CRP levels. CRP levels in the K(-) group were significantly higher than those in the K(0) group, indicating that high-fat diet induction impacted increasing CRP levels. On the other hand, CRP levels in the K(+), P1, and P2 groups were significantly lower than those in the K(-) group, indicating that administering simvastatin and black seed oil in doses of 3 ml/kgbb and 4 ml/kgbb were able to reduce CRP levels in mice induced by a high-fat diet. There were differences between the K(+), P1, and P2 groups in CRP levels, where the CRP levels in the K(+) group were significantly lower than those in the P1 group, indicating that simvastatin was more effective in reducing CRP levels compared to 3 doses of black seed oil. ml/kgbb. In addition, CRP levels in group P1 were significantly higher than in group P2, indicating that 4 ml/kgbb of black seed oil was more effective in reducing CRP levels than 3 ml/kgbb. However, it should be noted that the CRP levels in the K(+), P1, and P2 groups were still significantly higher than in the K(0) group, indicating that the effect of administering simvastatin or black seed oil in doses of 3 ml/kgbb and 4 ml/kgbb The reduction in CRP levels in mice induced by a high-fat diet did not reach optimal levels.

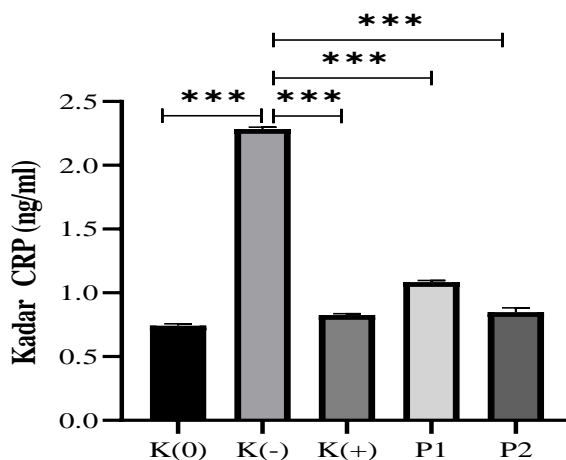


Figure 6. Bar graph of average CRP levels between groups

Next, to provide support for whether body weight and lipid profile affect IL-10 levels and CRP levels, a correlation analysis was carried out, and the results were obtained, namely:

Table 5. Correlation of body weight and lipid profile with IL-10 levels and CRP levels

	<i>p</i> -value ( <i>r</i> correlation)	
	IL-10 Levels	CRP Levels
Body weight <sup>^</sup>	<0,001 (-0,831)	<0,001 (0,813)
Total cholesterol level <sup>^</sup>	<0,001 (-0,908)	<0,001 (0,916)
Triglyceride levels <sup>^</sup>	<0,001 (-0,926)	<0,001 (0,870)
LDL levels <sup>*</sup>	<0,001 (0,957)	<0,001 (-0,935)
HDL levels <sup>^</sup>	<0,001 (-0,972)	<0,001 (-0,875)

\* = Pearson correlation test, ^ = Spearman rank correlation test

Table 5 shows that body weight, total cholesterol levels, triglyceride levels and LDL levels have a very strong negative correlation with IL-10 levels. In contrast, HDL levels positively correlate ( $p < 0.001$ ). On the other hand, body weight, total cholesterol levels, triglyceride levels and LDL levels had a very strong positive correlation with CRP levels. In contrast, HDL levels had a negative correlation ( $p < 0.001$ ). The *r* correlation values obtained each ranged from 0.800-1.000, indicating that the relationship between body weight and lipid profile with IL-10 levels and CRP levels was classified as very strong. These results can show the effect of Black Seed on IL-10 levels and CRP levels, which are also related to body weight and lipid profile.

## IV. DISCUSSION

IL-10 levels in rats induced by a high-fat diet for 4 (four) weeks decreased significantly compared to healthy mice's IL-10 levels. The decrease in IL-10 levels occurred because the induction of a high-fat diet increased the body weight of the mice or had an

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impact on obesity, which was characterized by an increase in body weight up to > 220 gr. Similar results were also shown in the study by Kondo et al., who stated that obesity associated with the induction of a high-fat diet significantly resulted in a significant decrease in serum IL-10 levels in wild-type mice.<sup>15</sup> Obesity is characterized by low-grade inflammation in adipose tissue due to changes in adipokines and the release of various cytokines. Obesity associated with a high-fat diet causes a decrease in the differentiation of naive T cells into Th2 anti-inflammatory cells that secrete anti-inflammatory cytokines such as IL-10, IL-13 and IL-4.<sup>17</sup> High TNF- $\alpha$  secretion from the accumulation of visceral fat,<sup>18</sup> and an increase in the mass or size of adipose tissue.<sup>19</sup>

Apart from being obese, decreased IL-10 levels also occur due to the induction of a high-fat diet that contributes to dyslipidemia, which in this study was indicated by total cholesterol levels, namely 201.5 mg/dl; triglyceride levels, namely 130.56 mg/dl; LDL levels were 80.28 mg/dl, and HDL levels were 23.12 mg/dl. The lipid profile is different from that shown by normal/healthy mice, namely 84.6 mg/dl; 75.32 mg/dl; 23.81 mg/dl each for total cholesterol levels, triglyceride levels, and LDL and HDL levels, namely 81.21 mg/dl. Evidence of mice experiencing dyslipidemia was also shown in previous studies, which showed that the cholesterol levels of the Wistar rats significantly reached 95.7 mg/dl (from the normal 36.2 mg/dl); HDL level is 6.6 mg/dl (from normal 5.2 mg/dl), LDL level is 83.2 mg/dl (from normal 24.2 mg/dl). Triglyceride level is 10.5 mg/dl (from normal 6.7 mg/dl).<sup>20</sup> According to a study by Kim et al., IL-10 levels were negatively correlated with changes in total cholesterol and LDL levels. IL-10 levels decrease when total cholesterol levels and LDL levels increase

A high-fat diet increases levels of free fatty acids, which can directly affect intestinal cells and, cause an increase in proinflammatory cytokines and decrease anti-inflammatory cytokines. The high free fatty acids can upregulate the toll-like receptor (TLR) expression in circulating macrophages so that macrophages (M1) are activated. Then, M1 secretes TNF- $\alpha$ , IL-1, and mass cell protease-1 (MCP-1) to recruit monocytes to adipose tissue and increase the ratio of M1 to M2, causing a decrease in IL-10. On the other hand, increased levels of triglycerides and total cholesterol can increase the role of free fatty acids in regulating TLR2 and TLR4 to trigger NF $\kappa$ B activation, which results in the release of proinflammatory cytokines and decreased levels of IL-10.<sup>22</sup>

Black seed administration can increase IL-10 levels in rats induced by a high-fat diet at 3 ml/kg and 4 ml/kg. This result is because Black Seed is rich in bioactive compounds that can improve lipid profiles and reduce rat weight. Several previous studies in mice, rats, or clinical trials have shown that Black Seed can improve lipid profiles by reducing cholesterol levels, LDL levels, triglyceride levels, and VLDL, and increasing HDL levels; it can also reduce body weight, as well as body mass index (BMI).<sup>23</sup>

Interleukin-10 (IL-10) is an anti-inflammatory cytokine that plays an important role in shaping the immune response by inhibiting the expression of major histocompatibility complex (MHC) class II and reducing the expression of pro-inflammatory cytokines (IL-1 and IL-6) from macrophages.<sup>24</sup> Increased IL levels -10 in mice with high-fat diet induction occurred because black seed oil contains the active compound thymoquinone.<sup>25</sup> Administration of black seed oil in previous studies showed a reduction in serum cholesterol and triglyceride levels as well as levels of pro-inflammatory cytokines consisting of TNF- $\alpha$ , IL-1, IL-6, and lactate dehydrogenase,<sup>26</sup> as well as increasing IL-10 levels.<sup>27</sup> Research on lipopolysaccharide (LPS)-induced bovine adipocytes also shows that Black Seed water extract has an immunomodulatory effect by reducing IL-6 and TNF- $\alpha$  levels and increasing the expression of IL-10.<sup>28</sup>

Thymoquinone regulates inflammatory processes in various ways, including inhibiting cyclooxygenase-2 (COX-2), NF $\kappa$ B and nitric oxide (NO) to reduce inflammatory cytokines. Thymoquinone inhibits NO production by reducing the expression of inducible nitric oxide synthase (iNOS),<sup>29</sup> and from the NF $\kappa$ B pathway, thymoquinone inhibits the nuclear expression of the P65 NF $\kappa$ B subunit and the binding of the P50 subunit to the TNF- $\alpha$  promoter.<sup>30</sup> This study's results are similar to previous studies that thymoquinone improves oxidative stress. Moreover, reduces the inflammatory response by reducing TNF- $\alpha$  and increasing levels.

IL-10 in the non-alcoholic fatty liver disease (NAFLD) rat model. Clinical trials in NAFLD patients can also prove that giving Black Seed seeds 2 g/day can reduce TNF- $\alpha$  and NF $\kappa$ B.<sup>31</sup>

This study found that administering black seed oil in a higher dose, namely 4 ml/kgbb, had a better effect in increasing IL-10 levels compared to a dose of 3 ml/kgbb. However, the effect of increasing IL-10 levels produced by black seed oil was still lower than that of simvastatin, and IL-10 levels in the group receiving black seed oil still did not reach normal levels. This is likely caused by the continued administration of a high-fat diet, which is a contributing factor. High CRP levels in this study's K(-) group were also associated with obesity and an unbalanced lipid profile. Obesity can lead to increased inflammatory cytokines and decreased adiponectin, while increased adipose size contributes to increased free fatty acids and increased CRP levels. CRP has a significant relationship with lipid profiles, such as total cholesterol, triglyceride, LDL, VLDL and HDL levels, which was also observed in this study. These results show that lipid metabolism disorders occur simultaneously with the inflammatory process.<sup>32</sup> Increased CRP levels are one of the main causes of atherosclerosis and heart disease, along with VLDL levels, total cholesterol, LDL, triglycerides

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and decreased HDL levels.<sup>33</sup>

By administering Black Seed, the increase in CRP levels due to induction of a high-fat diet can be suppressed through weight loss and improvement in lipid metabolism disorders as indicated by a decrease in total cholesterol levels, triglyceride levels, LDL levels and an increase in HDL levels. A literature review conducted by Al Asoom states that long-term administration of Black Seed (6-12 weeks) can significantly reduce body weight and anthropometric indices and improve lipid profiles, glucose levels, and insulin resistance. This effect is demonstrated because the fatty acid and thymoquinone content in black seed can suppress appetite, reduce calorie intake and inhibit intestinal glucose absorption.<sup>34</sup> Reducing body weight will reduce low-grade systemic inflammation, characterized by decreased IL-6 levels released by adipose tissue. Subcutaneous or abdominal visceral, so that stimulation of acute phase protein (CRP) production by the liver also decreases.<sup>35</sup>

Improving the lipid profile of Black Seed comes from its essential oils, namely nigellone, thymoquinone, phytosterols, flavonoids, and other compounds that act synergistically to inhibit de novo cholesterol synthesis, reduce intestinal cholesterol absorption, increase biliary or fecal cholesterol excretion and increase regulation of hepatic LDL receptors. Clinical trials on NAFLD patients can also prove that administering 2 g/day of Black Seed seeds can reduce CRP levels.<sup>36</sup> Systematic reviews and meta-analyses of randomized controlled trials also state that Black Seed seeds can significantly reduce serum CRP levels.<sup>37</sup> Thymoquinone suppresses IL pro-inflammatory factors. -6 through inhibition of the AP-1/NFκB pathway associated with IRAK.<sup>38</sup> Suppression of IL-6 causes CRP production to decrease because IL-6 is involved in CRP regulation.

Administration of simvastatin also significantly reduces CRP levels, which occurs by directly reducing CRP production in hepatocytes through inhibiting protein geranylgeranylation and inhibiting STAT3<sup>39</sup> phosphorylation.

In this study, administering a higher dose of black seed oil of 4 ml/kgbb had a better effect on CRP levels than a dose of 3 ml/kgbb. The effect was similar to simvastatin, but the effect obtained was not equivalent to normal conditions. This result was also caused by the treatment of dyslipidemia not being accompanied by cessation of the high-fat diet, as well as the duration of administration being less long.

### V. CONCLUSION

1. Black Seed significantly affected IL-10 levels and CRP levels in male Wistar rats that had been induced on a high-fat diet.
2. The results of the analysis showed that the mean IL-10 level in the control group (K(0)) was  $111.41 \pm 4.40$  pg/ml; negative group (K(-)) was  $31.52 \pm 2.45$  pg/ml; positive group (K(+)) was  $82.45 \pm 3.53$  pg/ml; treatment group 1 (P1) was  $60.31 \pm 2.44$  pg/ml; and treatment group 2 (P2) was  $89.61 \pm 4.07$  pg/ml. Meanwhile the mean CRP level in the control group (K(0)) was  $0.74 \pm 0.02$  ng/ml; negative group (K(-)) was  $2.28 \pm 0.01$  ng/ml; positive group (K(+)) was  $0.83 \pm 0.01$  ng/ml; treatment group 1 (P1) was  $1.08 \pm 0.01$  ng/ml; and treatment group 2 (P2) was  $0.85 \pm 0.03$  ng/ml.
3. The difference in mean IL-10 levels between groups proved significant. In contrast, the difference in mean CRP levels between the two groups was insignificant, especially in comparing the K(+) and P2 groups.

### ACKNOWLEDGEMENT

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

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## Management of Employees' Cooperative of the State Universities and Colleges in Region



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**ABSTRACT:** The study assessed the management of employees' cooperative of the state universities and colleges in Region 1. Specifically, it was directed to determine the 1.) the level of the management of employees cooperatives in SUC's of Region 1 along the a.) cooperative governance and management in terms of organization and registration, membership, administration, responsibilities, rights and privileges, capital property and funds, allocation and distribution of net surplus and b.) cooperative operations in terms of voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training and information, cooperation among Cooperatives; and concern for the community, 2. level of outputs of the employees' cooperatives of SUC's in Region I along a.) for the cooperative in terms of generation of more productive services, increases of volume of business operations, improvement of facilities and assets and better employee benefits and b.) for the members in terms of increase in income, patronage refund and interest on share capital, 3. level of impact of the level of effectiveness of employees cooperatives of SUC's in Region I along a.) for the cooperative in terms of internal and external factors and b) for the members in terms of improved quality of life, increase in household income, average increase in savings deposit, acquisition of properties and assets and improvement/renovation of house.

The study made use of the descriptive-correlational method of research. This method made use of questionnaires duly validated by experts to gather the needed data. The frequency count and percentages, weighted mean and simple linear correlation analysis were utilized in the treatment and analysis of data. The population of the study was composed of three managers, eight employees and 248 members of the employees' cooperative of the SUC's in Region 1. On the part of the respondents, the samples were determined using G-Power method (99.74% power and effect size of 0.2). The data on the number of employees cooperative were obtained from the Cooperative Development Authority, Vigan City Office.

Results of the study shows that the level of the management of employee's cooperatives in SUC's of Region I are highly implemented of effectiveness in terms of cooperative governance and operations. The outputs of the employees' cooperatives of SUC's in Region I had increase of volume of business operation, improvement of facilities and assets, better employee benefits, and increase of income on members. As a result, there is an increase on revenue, net surplus, and membership, the quality of life to members were achieved. The level of implementation of the effectiveness of employees in cooperative of SUC's in Region I was significantly influenced by the cooperative.

From the findings, the following recommendations are hereby offered: (1). To generate more, it is suggested that the cooperative may consider the expansion and strengthening the linkages to other non-government organization for future attribute on the operations of the cooperative. (2.) Since the level of outputs of the employees has the lowest rating to new variety of products/ services are created, it is suggested that the cooperative may investigate possible opportunities for innovations and creation of new products and services for the improvement of programs/ projects. (3). A continuous increase of employment should be taken into action because more members mean more contribution and jobs for the community. The management should always consider that the more persons to cooperate, the better for the cooperative. It is recommended that members of the cooperative should also require the general assembly to attend trainings relative to the cooperative development for higher level of effectiveness.

**KEYWORDS:** Cooperative, management, governance, impact

# Management of Employees' Cooperative of the State Universities and Colleges in Region

## INTRODUCTION

The cooperative movement in the Philippines is evidently playing a significant role in the attainment of the country's sustainable development goals along the areas of poverty eradication, decent work and economic growth responsive production and consumption reduced inequalities, climate action, peace and justice and strong institutions and gender equality.

The cooperative enterprises strong philosophical base is clearly laid out in the aim that is greater than merely satisfying the common needs of their members. The inherent element of all times has been that cooperation as its best aims at something beyond promotion of the interest of the individual members who compose the cooperatives rather their objective is to promote the progress and welfare of humanity. It is the aim that makes cooperatives something different from an ordinary economic enterprise or in terms of their business efficiency, but moreover, from their significant contributions to the country's socio-economic development.

Cooperatives are fast assuming their multifarious roles in countryside development. They are not only dynamic form of business enterprise that embodies the philosophy of cooperation, but also signifies the voluntary assent of the people to form themselves into a group in the promotion of their needs by mutual action, democratic control and sharing of economic benefits on the basis of their active participation in the affairs of the cooperatives. Aside from their economic contributions, they perform useful role in the development of human resources through the enhancement of the skills and reinforcement of the values of their members in order to attain their ultimate purpose which is the community building.

Cooperatives serve as instruments of equity, social justice, and sustainable development. The government is responsible to its commitment to uplift the standard of living of the people through cooperatives. It has implemented programs, projects and activities as laid out in the Cooperative Code of the Philippines. As envisioned, cooperatives shall provide maximum economic benefits to their members, teach them the efficient ways of doing things and new ideas in business management, and allow the lower income groups to increase their ownership in the country's wealth.

Moreover, academic institutions have recognized the importance of cooperative association as a vehicle for promoting the socio-economic well-being of their employees. Through cooperatives, the employees of universities or colleges undertake a business enterprise that operates in accordance with accepted democratic principles, service oriented and is primarily established to serve the needs of the member employees. The economic benefits gained from the cooperative are shared among the members on the basis of participation and patronage.

In order to achieve economic viability, the employee's cooperative should conduct their operations based on sound management principles and practices. Management is the primarily force which organizations utilize for coordinating human materials and financial resources. It is responsible for organizational performance, both current results and future potential. Furthermore, management is viewed as the single most critical social activity in connection with economic progress. Physical, financial, and human resources are by themselves but passive agents; they must be effectively combined and coordinated through sound, active management if an organization is to experience a substantial level of economic growth and development.

In the effective management of cooperatives, good governance and transparency are wanting. It is in this setting that the cooperatives can recruit more members thus enhancing its financial viability. Good governance of the cooperatives refers to the transparency practices which include among others the bulletin of information of the services of the cooperatives, information dissemination of the policies of the cooperative, declaration of its assets and liabilities. Good governance, then, aims to protect the interest of its members as mandated by the Cooperative Code of the Philippines.

Good governance further generates employment, and it is also a terrain in harnessing the best practices of a cooperative. It can be an increasing cooperative income, networking and social marketing approaches and long-range planning and forecasting. However, despite of the good aims of the cooperative in promoting good governance there are still problems encountered in its management. If the said problems will not be given solutions, it will surely affect the management of the cooperatives and its public image.

Though with its impressive performance, the cooperative sector has to sustain its increasing and challenging responsibilities. It has to grow to be more responsive to the needs of its members and the communities. As the life and future of the cooperatives greatly depend on dynamic leadership, like any formal organization, cooperatives need effective and efficient management to achieve their objectives. They have to be pro-active to beat the challenges of development.

It is hoped that this study could provide the managers and staff of the employees' cooperatives of the state universities and colleges (SUCs) with better insights on the status and prospects of their cooperative that will serve as their guide in developing sustainable programs, projects, and activities. Likewise, this may help the members develop a high level of confidence over the cooperatives' management and governance and in promoting their socio-economic wellbeing. Furthermore, the results of this study may help the cooperative administrators and advocates in formulating policies and strategies that could further enhance

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cooperative enterprise development in universities and colleges. Moreover, this study may serve as a basis in the conduct of functional and relevant researches along cooperatives.

### STATEMENT OF THE PROBLEM

This study mainly aimed to determine the management of employee's cooperative of SUC s in Region I.

Specifically, it sought to answer the following questions:

1. What is the level of the management of employees cooperatives in SUC's of Region 1 along the following:
  - A. Cooperative Governance and Management
    - A.1. Organization and Registration;
    - A.2. Membership;
    - A.3. Administration;
    - A.4. Responsibilities, rights and privileges;
    - A.5. Capital Property and funds;
    - A.6. Allocation and Distribution of Net Surplus;
  - B. Cooperative Operations
    - B.1. Voluntary and Open Membership;
    - B.2. Democratic Member Control;
    - B.3. Member Economic Participation;
    - B.4. Autonomy and Independence;
    - B.5. Education, Training and Information;
    - B.6. Cooperation among Cooperatives; and
    - B.7. Concern for the Community?
2. What is the level of outputs of the employees' cooperatives of SUC's in Region I in terms of the following?
  - 2.1. For the Cooperative
    - 2.1.1. Generation of more productive services,
    - 2.1.2. Increases of Volume of Business Operations,
    - 2.1.3 Improvement of Facilities and Assets
    - 2.1.4. Better Employee Benefits?
  - 2.2. For the members
    - 2.2.1. Increase in income
    - 2.2.2. Patronage Refund
    - 2.2.3 Interest on Share Capital
3. What is the level of impact of the level of effectiveness of employee's cooperatives of SUC's in Region I in terms of the following?
  - 3.1. For the Cooperative
    - 3.1.1. Internal Factors
      - 3.1.1.1. Increase in revenue,
      - 3.1.1.2. Increase in net surplus,
      - 3.1.1.3. Increase in membership and,
      - 3.1.1.4. Increase in Services?
    - 3.1.2. External Factors
      - 3.1.2.1. Increase in Employment and,
      - 3.1.2.2. Increase in Tax?
  - 3.2. For the members
    - 3.2.1. Improved quality of life,
    - 3.2.2. Increase in household income,
    - 3.2.3. Average increase in savings deposit,
    - 3.2.4 Acquisition of properties and assets,
    - 3.2.5. Improvement/renovation of house?

### SCOPE AND DELIMITATION OF THE STUDY

This study aimed to determine the management of employees' cooperative of SUCs in Region I.

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The employees' cooperative of Mariano Marcos State University (MMSU), Don Mariano Marcos Memorial State University (DMMMSU) and Pangasinan State University (PSU) are the subjects of this study.

The manager, employees, and members of the cooperative served as respondents of the study. The statistical tools used to analyze the data gathered are frequency, percentages, means, and linear regression.

### THEORETICAL FRAMEWORK

This section provides existing literature, readings and studies that are local, national, and foreign as well as published and unpublished materials which have helped the researcher to conceptualize the study. It also lays down the theoretical bases and considerations for this research endeavor.

#### Impact of Cooperatives

The cooperative movement in the Philippines is clearly manifesting its capacity to participate in the achievement of the Sustainable Development Goals in seven areas, namely: eradication of poverty and hunger, decent work and economic growth, responsive production and consumption, reduced inequalities, climate action; peace, justice and strong institutions, and gender equality. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>) Author (date) method. If no author, copy title and year

a) Eradication of poverty and hunger. The CDA is on its track to provide technical, financial and institutional development assistances to micro and small cooperatives to transform them into medium and large cooperatives, thus making them profitable, sustainable and competitive in the market. The transformation of these cooperatives into viable and sustainable status is projected to have an impact on creating a broad productive agricultural and rural enterprises, thus, contributing to the eradication of poverty and hunger. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

b) Quality education. The Philippines has recently started the K-12 education program which has essentially added two (2) years of academic training in the secondary education to further improve the quality of education in the Philippines. The CDA, in response to improving the quality of education and training program in the country, expands its traditional accreditation of training service providers as partners in the conduct of mandatory and optional training program for cooperatives by recognizing the state and private colleges and universities to conduct the training of trainers, to participate in developing research agenda, and to conduct research as a strategy for expanding the capacity of the CDA to extend academic services to the cooperative sector. The CDA is also looking forward to instituting a Cooperative College in partnership with the state colleges and universities that will provide formal and non-formal education for cooperatives, conduct research, and assist in developing a system of data warehousing, retrieval, processing and dissemination that will provide readily available information useful for policy-making, program implementation, academic studies and advocacy on cooperatives. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

c) Decent work and economic growth. The institution of the labor service and workers cooperatives and government policy of ending congratulation of labor are projected to develop a vigorous workers cooperative that will provide alternative employment to members of workers cooperatives better than contractual arrangement under the present set-up. The worker's cooperative is projected to create better employment opportunities, wage, and income than the present set-up and consequently will provide a decent work for members of workers cooperatives and economic growth by creating an environment for workers not only to sell labor but also to create goods/products. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

d) Reduced inequalities. The promotion of cooperatives in various areas of business interest is a direction towards promoting the social and economic status of the less privileged members of the society and to enjoin them to participate in national social and economic activities. The continuous education program for cooperatives is a strategy to build the technical expertise and entrepreneurial capacities of cooperative members, thus improving their capacities to participate in enterprise and business development. The continuous capital build-up and savings mobilization programs for cooperative members facilitate the financial capacity of cooperatives and their members to finance enterprises that will generate income and uplift their economic status. The build-up of their human resource capacities and financial resources are strategies that can immensely contribute to uplifting the social and economic status of the poor and close the social and economic gaps between the rich and the poor. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

e) Responsive production and consumption. The promotion of organic farming which primarily promotes the avoidance of the use of harmful pesticide and inorganic fertilizer encourages the production and consumption of healthy food, thus promoting a healthy life for cooperative members as well as the general consumer. The production and consumption of healthy food is envisioned to create healthy consumers, reduce the cost of health maintenance, and increase the allocation of financial

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resources to productive activities. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

f) Climate action. Cooperative members are already much aware of the change in weather and climate and their impact on production, food consumption and human habitat. Cooperatives as community organizations are potent institutions for inducing communities to adopt to climate change by introducing production system and community ecology in harmony with climate change. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

g) Peace, justice and strong institutions. The Muslim Mindanao of Southern Philippines has been an area of strife and conflict. The search for solutions for lasting peace has been costly in terms of resources, human lives and lost opportunities for better living. The idea of using cooperatives as a solution to the conflicts and promotion of peace is being discussed and explored. The diversion of energies and resources from arms to enterprise development of each and every member of the community could be the solution for having lasting peace and promoting the socio-economic well-being of community members. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

h) Gender equality. The Philippines has a Gender and Development Program which mandates, among others, every government agency to allocate 5% of its budget for Gender and Development or GAD. The CDA has an issuance called "Guidelines on Mainstreaming GAD in Cooperatives" that seeks to disseminate to the cooperative sector the GAD mandate of government and to ensure the promotion of gender equality (GE), the institutionalization of GAD policies, programs and activities in each and every cooperative, and to monitor the progress of GAD programs and activities towards achieving GE. (<http://cda.gov.ph/products-and-services-0/109-board-of-administrators/adm-eulogio-t-castillo-ph-d>)

### Employees' Cooperative

The International Organization of Industrial, Artisanal and Service Producers' Cooperatives, gives an 8-page definition in their World Declaration on Workers' Cooperatives, which was approved by the International Co-operative Alliance General Assembly in September 2005. It define the basic characteristics of workers' cooperatives; (1) the objective of creating and maintaining sustainable jobs and generating wealth, to improve the quality of life of the worker-members, dignify human work, allow workers' democratic self-management and promote community and local development; (2) the free and voluntary membership of their members, in order to contribute with their personal work and economic resources, is conditioned by the existence of workplaces; (3) as a general rule, work shall be carried out by the members. This implies that the majority of the workers in a given worker cooperative enterprise are members and vice versa; (4) the worker-members' relation with their cooperative shall be considered as different from that of conventional wage-based labour and to that of autonomous individual work; (5) its internal regulation is formally defined by regimes that are democratically agreed upon and accepted by the worker-members; (6) it shall be autonomous and independent, before the State and third parties, in their labour relations and management, and in the usage and management of the means of production.

Nevertheless, recent developments in the co-operative movement have started to shift thinking more clearly towards multi-stakeholder perspectives. This has resulted in repeated attempts to develop model rules that differentiate control rights from investment and profit-sharing rights. Workers' co-operatives have often been seen as an alternative or "third way" to the domination of labour by either capital or the state (see below for a comparison). Co-operatives traditionally combine social benefit interests with capitalistic property-right interests. Co-operatives achieve a mix of social and capital purposes by democratically governing distribution questions by and between equal controlling members. Democratic oversight of decisions to equitably distribute assets and other benefits means capital ownership is arranged in a way for social benefit inside the organization. External societal benefit is also encouraged by incorporating the operating-principle of cooperation between co-operatives.

Profits (or losses) earned by the worker's cooperative are shared by worker owners. Salaries generally have a low ratio difference which ideally should be "guided by principles of proportionality, external solidarity and internal solidarity (such as a two to one ratio between lowest and highest earner), and often are equal for all workers. Salaries can be calculated according to skill, seniority or time worked and can be raised or lowered in good times or bad to ensure job security.

Worker cooperatives have a wide variety of internal structures. Worker control can be exercised directly or indirectly by worker-owners. If exercised indirectly, members of representative decision-making bodies (e.g. a Board of Directors) must be elected by the worker-owners (who in turn hire the management) and be subject to removal by the worker-owners. This is a hierarchical structure similar to that of a conventional business, with a board of directors and various grades of manager, with the difference being that the board of directors is elected.

**On Organization Registration.** Organizing a cooperative can be complex and simple. It requires an understanding of the basic needs of the prospective cooperative members. It demands patience from the organizer who must make the cooperative's



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long-term goals and objectives, and its visions a real part of the members' lives. But it can be too easy because the Cooperative Code of the Philippines (RA 6938) has devised very clear-cut steps for the cooperative organizer and members.

**On Membership.** Cooperative members are persons-individuals, partnerships, corporations, and associations-holding membership in a cooperative organized without capital stock or holding stock in a cooperative with capital stock. These persons are instrumental in starting or keeping the cooperative business going because they realize they can solve their economic problems and attain their goals only by working together. They voluntarily affiliate with the cooperative. Any person marketing, purchasing, or obtaining a service through a cooperative is a patron. Members fulfilling their obligation by patronizing their cooperative are called member patrons.

A member of a cooperative is an owner of that co-op. Generally, they become a co-op owner (member) when they economically contribute capital through the purchase of a share of the co-op. By becoming a member, an individual receives decision making rights in the co-op. The level of decision making rights for member-owners often depends on the size and type of co-op. But in every form of co-op, at minimum, the members elect the co-op's board of directors. In addition, members of co-ops must own that co-op *equally* - meaning all members may only have one share and one vote in decision making processes.

According to the first cooperative principle, membership in a co-op must be "voluntary and open": *Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.*

Membership must be "voluntary" because formerly in some countries with dictatorships "cooperatives" had forced membership and were only "cooperative" in name. (<http://www.ica.coop/coop/principles.html>)

**On Administration of Cooperatives.** Galor (1988) cited that cooperative enterprise is distinct in its management structure, than other enterprises management structure. The cooperative enterprise is composed of two elements. It stands on two legs:

1. The ownership leg. The cooperative belongs to all its members individually and equally, and they finance the assets of the cooperative entirely and equally.

2. The functioning leg. The members pay for the entire costs of operation of the cooperative, but not equally. They pay for its operation according to their patronage in the cooperative. This paper will show the other aspect of the cooperative management, its democratic structure.

In the administration of other organizations, a hierarchy of responsibility is seen, with one person in charge at the top. From the apex, authority is delegated to those beneath, in progressively increasing numbers. In other words, a director delegates authority to the deputy directors, they delegate to the various executives, who, in turn, delegate to the various department managers. An organizational pyramid has therefore been generated with one in control at the apex and a broad base of responsibility.

Galvez (2015) mentioned the report of Cooperative Development Authority that the total of registered cooperatives in the country is 2,500, of which, organizations are basically formed for the following reasons: 1) to strengthen their operations and bargaining powers; 2) to have a more efficient sharing of technology and information; 3) to have a centralized office that will look after their training and information needs; and 4) to have a representative body which will represent them in functions concerning credit cooperatives.

He found out in his study, that cooperative members are very much aware of the desire to obtain loan assistance rather than to develop the cooperative which attributed to the failure of many cooperatives. Most respondent-member of the cooperative had undergone training and seminars in connection with cooperative development, which include leadership and management trainings, bookkeeping and

Galvez (2015) on her study "Status, Problems and Prospects of the Agricultural Multipurpose Cooperatives in the Province of Abra" found out that majority of the employees were male, a substantial number of the employees are within the age bracket 40 – 49, great majority of the employees were married, a great number of the employees are college graduate, mostly of the employees involved were members of committees, majority of the employees were engaged in farming, majority have 5 – 9 years of experience, a mark percentage of the employees can earn a minimal monthly income and majority of the employees have attended 1-5 seminars, a great percentage of the respondents are engaged in farming.

Rafanan (2014) in her study Status, Problems and Prospects of the Nueva Segovia Consortium of Cooperatives – "Ballaig't Kagimongan" stated that the entrance of Nueva Segovia Consortium of Cooperatives in the field of new microfinance program, which is engaging in agricultural business through sale and lending of synthetic fertilizers, organic fertilizers and foliar fertilizers to all members, regular, individuals and farmers and the prospect of entering into the Agrarian Information and marketing Center (AIM-CProject) was of great help.

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**On Responsibilities, Rights and Privileges in a Cooperative.** Every cooperative shall have an official postal address to which all notices and communications shall be sent. Such address and every change thereof shall be registered with the Authority. The accountant or the bookkeeper of the cooperative shall be responsible for the maintenance of the cooperative in accordance with generally accepted accounting practices. He shall also be responsible for the production of the same at the time of audit or inspection.

The audit committee shall be responsible for the continuous and periodic review of the books and records of account to ensure that these are in accordance with generally accepted accounting practices. He shall also be responsible for the production of the same at the time of audit or inspection.

Every cooperative shall draw up regular reports of its program of activities, including those in pursuance of their socio-civic undertakings, showing their progress and achievements at the end of every fiscal year. The reports shall be made accessible to its members, and copies thereof shall be furnished to all its members or record. These reports shall be filed with the Authority within one hundred twenty (120) days from the end of the calendar year. The form and contents of the reports shall be as prescribed by the rules of the Authority. Failure to file the required reports shall subject the accountable officer/s to fines and penalties as may be prescribed by the Authority, and shall be a ground for the revocation of authority of the cooperative to operate as such. The fiscal year of every cooperative shall be the calendar year except as may be Register of Members as Prima Facie Evidence. Any register or list of members shares kept by any registered cooperative shall be prima facie evidence of the following particulars entered therein:

Every director, officer, and employee handling funds, securities or property on behalf of any cooperative shall be covered by a surety bond to be issued for a duly registered insurance or bonding company for the faithful performance of their respective duties and obligations. The board of directors shall determine the adequacy of such bonds. Upon the filing of the application for registration of a cooperative, the bonds of the accountable officers shall be required by the Authority. Such bonds shall be renewed manually and the Authority shall accordingly be informed of such renewal.

**On Capital Property and Funds.** The Cooperative Code of the Philippines cited the following as sources of capital and funds of a cooperative. The greater the amount of capital held by the cooperative, the greater its ability to purchase more efficient technology, invest in staff training and education and make other improvements to the running of the business.

Deriada (2005), on his paper, "Assessment of Cooperative Movement in a Developing Country: The Philippine Experience" cited that the capital fund in cooperatives differs from ordinary entrepreneurial capital in several respects. The equity comes from members, obtained by direct contribution through membership fees, share capital or the desire of the members to retain a portion of its dividends or patronage refunds in the cooperative. Moreover, scarce financing, lack of cooperative consciousness. One of the most complicated issues, which concern the financial management of both the cooperatives and the IOFs, is the relation between the capital structure of a firm and its ability to compete IOFs operated within the same market. This problem is of particular concern for cooperatives since on the one hand profit maximization is not considered to be their primary aim, while on the other they come under enormous pressure from competition from the private sector to finance investments and expensive competitive strategies, given that the cooperatives offer the same products and they are exposed to the same market conditions with the IOFs (Bateman et al., 1979; Oustapassidis, 1998). It is well known that the financial structure of the cooperatives is impacted by the management system, fundamentally differing from that of IOFs (one man = one vote, instead of one share = one vote) with the ensuing consequences as regards the dividends and interest policies. However, it is vital for cooperatives to achieve the optimum capital structure in order to be in a position to fund both the necessary investments and strategies which will render them competitive (Helmberger and Hoos, 1962; Oustapassidis and Notta, 1997). Otherwise they will not be able to survive in the long run within markets where both competitive strategies and investment in new technology are intensively applied by the existing firms. Greek dairy manufacturing firms are forced to apply such expensive practices to increase their market power (Oustapassidis, 1998; Nielsen Hellas, 1990-98). The ability of firms to finance these strategies significantly affects the net profit margin and thus their competitiveness. While the Industrial Economics literature includes a large number of empirical studies referring to the effects of structural (e.g., market share) and organization variables on firm's performance (e.g., Scherer and Ross, 1990; Hay and Morris, 1991; Martin, 1994; Vlachvei and Oustapassidis, 1998; Oustapassidis and Vlachvei, 1999) only few studies (e.g., Martin, 1993) have examined the effects of financial ratios on profitability in the manufacturing sector. Further, the relevant cooperative literature includes some studies (e.g., Price and Peters, 1983 and 1985; Parliament et al., 1990) referring to the financial characteristics of agricultural cooperatives.

The Rochdale Pioneers "Law First" of their Rochdale Equitable Pioneers Society rules of 1844 stated that: "The objects and plans of this Society are to form arrangements for the pecuniary benefit, and improvement of the social and domestic condition of its members, by raising a sufficient amount of capital in shares of £1 each, to bring into operation the following plans

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and arrangements:" By 1860 the Pioneers' commitment to the principles of self-help and self-sufficiency were such that the "Rules of Conduct" for their co-operative society stated: "That capital should be of their own providing ...." In 1844 the Pioneers saved for a year to raise capital in shares of £1 from each member; a significant sum which equated to a week and a half's wages for a skilled worker at the beginning of the Industrial Revolution. Some co-operatives have reduced the capital investment required to become a member and to gain voting rights to an insignificant nominal amount. This devalues membership and creates an inherent danger that the core co-operative values of self-help and self-responsibility are not applied. A co-operative that relies heavily on external sources for the capital needed to fund its business operations creates a risk of breaching the 4th Principle of autonomy and independence through the financial and compliance covenants imposed by commercial lenders or venture capital investors. The balance between the relative weight of member capital and external capital should be carefully watched by members. Too much reliance on external capital can lead to loss of autonomy, independence and democratic control with investors gaining control of key business decisions as a condition of their investment.

### METHODOLOGY

**Research Design.** This descriptive study used quantitative and qualitative techniques to explore the status of employees' cooperative in Region 1. It makes use of mixed methods research design such as the use of a survey questionnaire and interview.

According to Herse-Biber (2010), mixed methods research holds greater potential to address complete questions by acknowledging the dynamic interconnections that traditional research has not adequately addressed. The used of the triangulation method ultimately fortifies and enriches the study conclusions, making them more acceptable and advocates of qualitative and quantitative methods. Moreover, it allowed the researcher to gain a fuller understanding of the research problem or to clarify the given results (Green and Greham, 1989).

**Population and Sample.** This study includes all the universities and colleges in Region 1, namely: Mariano Marcos State University (MMSU), University of Northern Philippines (UNP); Ilocos Sur Polytechnic State College (ISPSC), Sta. Maria and North Luzon Philippines State College (NLPSC), Don Mariano Marcos Memorial State University (DMMMSU) and Pangasinan State University (PSU).

On the part of the respondents, the samples were determined through the use of the formula given below.

$$n = \frac{N}{1 + Ne^2} \quad \text{where } N = \text{population}$$

n = sample size  
e = margin of error

**Table 1. Distribution of the Respondents of the Study**

Employees' Cooperatives	Manager		Employees/Officers		Members	
	N	N	N	n	N	n
SUC 1	1	1	3	3	1,225	125
SUC 2	1	1	3	3	245	66
SUC 3	1	1	2	2	268	57
<b>Total</b>	<b>3</b>	<b>3</b>	<b>8</b>	<b>8</b>	<b>1,738</b>	<b>248</b>

**Data Gathering Instruments.** Data gathered through the survey questionnaires were complimented with interviews. Questionnaire for the survey was constructed by the researcher adhering to the standard of questionnaire construction. It was content validated by experts in the field of Cooperative Management. three (3) sets of questionnaire were answered by the cooperative managers, employees or officers and members.

**Part I** obtained information on the level of effectiveness on the management aspects particularly on of employees cooperative.

**Part II** generated information on the level of outputs of the employees' cooperative.

The data were tabulated in different tables reflecting the mean with their corresponding description of the item.

In analyzing and interpreting the data on the level of effectiveness of the management of employees' cooperative, the following norms were used:

Scale	Statistical Range	Item Description	Overall Descriptive Rating
5	4.21-5.00	Very Effective	Very High
4	3.41-4.20	Much Effective	High
3	2.61-3.40	Effective	Moderate
2	1.81-2.60	Moderately Effective	Low

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1 1.00-1.80 Not Effective Very Low

In analyzing and interpreting the data on the output of employees' cooperative of the SUCs in Region 1, the following norms were used:

<u>Scale</u>	<u>Statistical Range</u>	<u>Item Description</u>	<u>Overall Descriptive Rating</u>
5	4.21-5:00	Very High Output	Very High
4	3.41-4.20	High Output	High
3	2.61-3.40	Moderate Output	Moderate
2	1.81-2.60	Low Output	Low
1	1.00-1.80	No Output	Very Low

In analyzing and interpreting the data on the impact of employees' cooperative of the SUCs in Region 1, the following norms were used:

<u>Scale</u>	<u>Statistical Range</u>	<u>Item Description</u>	<u>Overall Descriptive Rating</u>
5	4.21-5:00	Very Highly Impact	Very High
4	3.41-4.20	High Impact	High
3	2.61-3.40	Moderate Impact	Moderate
2	1.81-2.60	Low Impact	Low
1	1.00-1.80	No Impact	Very Low

**Data Gathering Procedure.** To facilitate the gathering of data, permission to administer the questionnaire was obtained from the President of each university/college. The period of distribution and retrieval of the questionnaire was negotiated with the manager of the employees' cooperative.

**Statistical Treatment of Data.** The data gathered in this study were analyzed and interpreted using the following statistical tools:

Mean was used to determine the level of effectiveness of the Management of Employees' Cooperative in SUCs Region 1.

The Regression Analysis was used to determine the relationship between variables taken singly or in combination.

### Ethical Consideration

The researcher's purpose was to contribute something for the improvement of the management of employees' cooperative by the State College and universities in Region I. In addition, the conduct of this study was not for personal purposes.

The permission to conduct a study was given by the University of Northern Philippines through a permission letter addressed to the university president. There was also a letter of consent for the validation of the questionnaire, a letter of consent to be distributed to the respondents. When the respondents granted the researcher's permission to gather data from them, they answered the questionnaires for about 15 minutes.

The respondents were asked to participate in the conduct of this study. Each respondent determined his or her profile, the extent of management of employees of cooperatives in SUC in Region I, level of the management of employees' cooperatives, level of outputs of the employees' cooperatives, level of impact of the level of effectiveness of employees' cooperatives, and the level of effectiveness of management of employees' cooperative influenced by the inputs. There was no possible risk in the respondents' participation to this study.

The respondents' participation was voluntary. There was also no compensation given to them. All data gathered from respondents were strictly confidential. All data gathered were sealed in envelopes and kept in a box. The researcher ensured the safety and protection of the respondents' identity and the information that were gathered. Only the researcher was able to access the respondents identify the data. The researcher assured that the respondents' right to confidentiality and privacy were respected.

Moreover, soft copies of data gathered were saved in the researcher's personal computer with passcode/ password. There were no individual identities revealed.

## PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

The data gathered on the management practices of employees' cooperative of SUCs in Region 1 are presented in this chapter with their corresponding analysis and interpretation.

### The level of effectiveness of the management of employees' cooperatives in SUC's in Region 1 in terms of Cooperative Governance

#### On Organization and Registration

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Table 2 shows the item mean ratings showing the level of management of employees' cooperative of SUCs in Region I in terms of cooperative governance and management along with organization and registration.

**Table 2 Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along with Organization and Registration**

Organization and Registration	Manager		Personnel		Member		As Whole <sup>a</sup>	
		DR		DR		DR		DR
The cooperative is set to undertake activities for the purpose agreed upon by the original members	4.00	MuE	4	MuE	4.08	MuE	<b>4.03</b>	<b>MuE</b>
The cooperative primary objective is to help improve the quality of life of the members.	4.33	VE	4.88	VE	4.05	MuE	<b>4.42</b>	<b>VE</b>
The cooperative exercise powers and privileges to carry out its purpose or purposes as stated in its article of incorporation.	4.33	VE	4.25	VE	4.08	MuE	<b>4.22</b>	<b>VE</b>
The original incorporators of the cooperative met all the minimum requirements set by the law.	3.67	MuE	4.75	VE	4.08	MuE	<b>4.17</b>	<b>MuE</b>
The coop prepared a general statement of purpose and structure and submitted to the CDA during the registration.	4.33	VE	4.25	VE	4.08	MuE	<b>4.22</b>	<b>VE</b>
The cooperative have a limited liability.	4.00	MuE	3.50	MuE	3.81	MuE	<b>3.77</b>	<b>MuE</b>
The cooperative shall exist for the period of 50 years and has plans to renew.	4.33	VE	3.13	E	3.90	MuE	<b>3.79</b>	<b>MuE</b>
The cooperative has an article of cooperation that is well communicated to all the members	4.67	VE	4	MuE	4.05	MuE	<b>4.24</b>	<b>VE</b>
The cooperative has by laws that is well communicated to all the members	4.00	MuE	4.75	VE	4.02	MuE	<b>4.26</b>	<b>VE</b>
The type and category of the cooperative is clear to the general assembly	4.67	VE	4.75	VE	4.06	MuE	<b>4.49</b>	<b>VE</b>
<b>Overall</b>	<b>4.23</b>	<b>VH</b>	<b>4.22</b>	<b>VH</b>	<b>4.02</b>	<b>H</b>	<b>4.16</b>	<b>H</b>

Statistical Range	Item Descriptive Rating	Overall Descriptive Rating
4-21- 5.00	Very Much Effective (VE)	Very High (VH)
3.41-4.20	Much Effective (MuE)	High (H)
2.61-3.40	Effective (E)	Average (A)
1.81-2.60	Fairly Effective (FE)	Low (L)
1.00-1.80	No Effective (NE)	Very Low (VL)

As seen in Table 2, there is a "High" level of effectiveness of management of employees' cooperative in SUCs' in Region 1 in terms of cooperative governance and management along with organization and registration with a mean rating of 4.16. This means that employees' cooperatives in SUCs of Region 1 are organized and registered in accordance with laws on cooperatives. Galvez (2015) supported this, which mentioned the report of Cooperative Development Authority that organizations are basically formed to strengthen their operations and bargaining power, have a more efficient sharing of technology and information and have a representative body that will represent them in functions concerning credit cooperative. Moreover, the Cooperative Code of the Philippines (R.A 6938) has devised a very clear-cut step for cooperative organizers and members.

Taken singly, the items "The type and category of the cooperative is clear to the general assembly" and "The cooperative primary objective is to help improve the quality of life of the members" got the highest mean ratings of 4.49 and 4.42, respectively, described as "Very Much Effective." This means that the cooperative is formed to uplift the quality of life amongst its members, which further implies that cooperatives primary objectives are for the benefit of its members.

Taken per group, the manager-respondents perceived a "Very High" ( $\bar{x} = 4.23$ ) level of management of employees cooperative in terms of cooperative governance and management along with organization and registration. The items "The

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cooperative has an article of cooperation that is well communicated to all the members" and "The type and category of the cooperative is clear to the general assembly" received a same mean rating of 4.67 described as "Very Much Effective." This means that managers properly communicate the article of cooperation since this is a mandate of the cooperative law and its operation.

Personnel-respondents perceived a "Very High" ( $\bar{x} = 4.22$ ) level of management of employees cooperative in terms of cooperative governance and management along with organization and registration. The item "The cooperative primary objective is to help improve the quality of life of the members" got the highest mean rating of 4.88, described as "Very Effective." This agrees with the primary goal of cooperatives, wherein cooperatives are being formed for the benefit and welfare of the members. However, the item "The cooperative shall exist for the period of 50 years and has plans to renew" got the lowest mean rating of 3.13, described as "Effective." This means that cooperatives' perception of their existence was least considered because of uncertainty, and they are not sure what will happen in the future.

Moreover, member-respondents perceived a "High" ( $\bar{x} = 4.02$ ) level of management of employees cooperative in terms of cooperative governance and management along with organization and registration. The item "The type and category of the cooperative is clear to the general assembly" received the highest mean rating of 4.49, described as "Very Effective. This means that communication as to the type and category of the cooperative is being explained and known by the members of the cooperative since members are the owners of the cooperative. Meanwhile, the item "The cooperative have a limited liability" got the lowest mean rating of 3.89, described as "Very Effective." This means that cooperative liability is low because they have sufficient capital to finance their operations.

### On Membership

Table 3 shows the item mean ratings on the level of management of employees' cooperative of SUCs in Region I in terms of cooperative governance and management along membership.

There is a "High" level of effectiveness of management of employees' cooperative in SUCs' in Region 1 in terms of cooperative governance and management along with membership, as backed up by its mean rating of 4.31. This means that employees cooperative of the SUCs in region 1 is open to all persons in the institution who can use their services and are willing to accept responsibilities and membership, without gender, social, racial, political, or religious discrimination. Employees' cooperative in SUCs of Region 1 are organized and registered in accordance with laws on cooperatives.

**Table 3. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along with Membership**

Membership	Manager		Personnel		Member		Overall	
		DR		DR		DR		DR
A member is entitled to all the rights and privileges of membership	4.33	VE	4.75	VE	4.25	VE	<b>4.44</b>	<b>VE</b>
The members can be categorized into:								
Regular Member								
Associate member	4.33	VE	4.75	VE	4.12	MuE	<b>4.4</b>	<b>MuE</b>
Contractual employees can be members in the cooperative	4.33	VE	4.88	VE	3.87	MuE	<b>4.36</b>	<b>VE</b>
Elective officials of the government are ineligible to become officers or board of directors	4	MuE	4.63	VE	3.80	MuE	<b>4.14</b>	<b>MuE</b>
An applicant for membership is approved by the board of directors	4.33	VE	4.63	VE	3.98	MuE	<b>4.31</b>	<b>VE</b>
A member is liable for the debts of the cooperative to the extent of his contribution to the share capital	4.67	VE	4.38	VE	3.99	MuE	<b>4.35</b>	<b>VE</b>
A member of a cooperative may, for any valid reason, withdraw from membership	4.67	VE	4.63	VE	3.89	MuE	<b>4.40</b>	<b>VE</b>
A member may be terminated by a vote of the majority of all the members of the board of directors.	4	MuE	4.25	VE	3.85	MuE	<b>4.03</b>	<b>MuE</b>
A member may be terminated by a insanity and death	4.67	VE	4.38	VE	3.99	MuE	<b>4.35</b>	<b>VE</b>
A member who is a government employees or official may in the discharge of is duties as a member in the cooperative, be allowed by the end of office concerned to use official time for attendance at the general assembly	4.67	VE	4.38	VE	3.97	MuE	<b>4.34</b>	<b>VE</b>
<b>Overall</b>	<b>4.40</b>	<b>VH</b>	<b>4.56</b>	<b>VH</b>	<b>3.97</b>	<b>H</b>	<b>4.31</b>	<b>VH</b>



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Taking the items singly, the item "A member is entitled to all the rights and privileges of membership" received the highest mean rating of 4.44, described as "Very Much Effective." This means that employees cooperatives in SUCs in Region I members enjoy all the rights and privileges of being cooperative. Meanwhile, the item "A member may be terminated by a vote of the majority of all the members of the board of directors" received the lowest mean rating of 4.03, described as "Much Effective." This means that there is a low tendency of termination of membership in the cooperative.

Considering per group of respondents, the managers perceived a "Very High" ( $\bar{x} = 4.40$ ) level of management of employees cooperative in terms of cooperative governance and management along with membership. The items "A member is liable for the debts of the cooperative to the extent of his contribution to the share capital," "A member of a cooperative may, for any valid reason, withdraw from membership," "A member may be terminated by a insanity and death," and "A member who is a government employees or official may in the discharge of duties as a member in the cooperative, be allowed by the end of office concerned to use official time for attendance at the general assembly" got the highest mean rating of 4.67, described as "Very Effective." This means that the cooperative has been consistent in its policy along with membership as manifested by policies and rules. Meanwhile, managers perceived items "Elective officials of the government are ineligible to become officers or board of directors" and "A member may be terminated by a vote of the majority of all the members of the board of directors" to have the least mean rating of 4.0, described as "Much Effective." This means that only private individuals are being tapped with their expertise to man the operations of the cooperative this may be because they have enough and sufficient time to man the activities and operations of the cooperative.

In terms of the personnel-respondents, they perceived a "Very High" ( $\bar{x} = 4.56$ ) level of management of employees cooperative in terms of cooperative governance and management along with membership. The item "Contractual employees can be members in the cooperative" obtained the highest mean rating of 4.88, described as "Very Effective." This means that membership in the cooperative is very simple so long as it can pay dues and fees provided in their cooperative. However, the item "There is an executive committee appointed by the board of directors" obtained the lowest mean rating of 4.25, described as "Effective." This implies that the executive committee is least considered since they have their manager/s to oversee the cooperative's operations and consider their capacity to pay since they are only small type cooperatives.

Lastly, the member-respondents perceived a "High" ( $\bar{x} = 3.97$ ) level of management of employees cooperative in terms of cooperative governance and management along with membership. The item "The general assembly is composed of members who are entitle to vote" gained the highest mean rating of 4.25, described as "Very Effective. This means that members in the cooperative exercise their right to suffrage in the general assembly since they are cooperative owners. Meanwhile, the item "A member may be terminated by a vote of the majority of all the members of the board of directors" gained the lowest mean rating of 3.80, described as "Very Effective." This implies that termination by a vote is least considered, which may be because termination of membership is rarely happening in the cooperative.

### On Administration

It can be gleaned from Table 4 that the participants perceived a "Very High" ( $\bar{x} = 4.56$ ) level of effectiveness of the management of employees' cooperative along cooperative governance under representative and participants along Administration. This means that employees' cooperative in SUCs' of Region 1 organized and registered in accordance with laws on cooperatives.

**Table 4. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along Administration**

Administration	Manager		Personnel		Member		As Whole	
	DR	VE	DR	VE	DR	VE	DR	VE
The general assembly is composed of members who are entitle to vote.	4.67	VE	4.63	VE	4.31	VE	<b>4.53</b>	<b>VE</b>
The general assembly is the highest policy making body	5	VE	4.50	VE	4.23	VE	<b>4.58</b>	<b>VE</b>
There is an annual regular meeting of the general assembly	4.67	VE	4.50	VE	4.30	VE	<b>4.49</b>	<b>VE</b>
Quorum of meetings is 25% of all the members	4.67	VE	4.50	VE	4.02	MuE	<b>4.40</b>	<b>VE</b>
Each member shall have only one vote	4.67	VE	4.50	VE	4.25	VE	<b>4.47</b>	<b>VE</b>

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The direction and management of the affairs of the cooperative is vested to the board of directors	4.67	VE	4.62	VE	4.13	MuE	<b>4.47</b>	<b>VE</b>
The responsibility of the board of the board of directors are stated on the by laws	4.67	VE	4.50	VE	4.27	VE	<b>4.48</b>	<b>VE</b>
There is an executive committee appointed by the board of directors	4.67	VE	4.52	VE	4.21	VE	<b>4.47</b>	<b>VE</b>
The bylaws provides the creation of different committees.	4.67	VE	4.37	VE	4.17	MuE	<b>4.40</b>	<b>VE</b>
There is a compensation to the officers and committee members	4	MuE	4.37	VE	4.13	MuE	<b>4.17</b>	<b>MuE</b>
<b>Overall</b>	<b>4.63</b>	<b>VH</b>	<b>4.51</b>	<b>VH</b>	<b>4.20</b>	<b>H</b>	<b>4.45</b>	<b>VH</b>

The item "The general assembly is the highest policy making body" received a mean rating of 4.58, described as "Very Much Effective." This means that the cooperative recognizes the general assembly as the overall policy making body and this may be because members are the owners of the cooperative. Meanwhile, the item "There is a compensation to the officers and committee members" received a mean rating of 4.17, described as "Much Effective." This means that cooperative least considers giving of compensation to its officers and committee members and this may be because there is a separate compensation system being implemented by the employees cooperatives of SUCs in region 1.

Considering per employees, manager-respondents perceived the item, "The general assembly is the highest policy making body" to be "Very Much Effective" with the highest mean rating of 5. This means that the cooperative had respected members in terms policy and decision making since members constitute the general assembly. It is significant to note that almost all the items perceived to be Very Much Effective, except for the item, "There is a compensation to the officers and committee members", which got the lowest mean rating of 4, described as "Much Effective." This implies that officers and other committee related to the cooperative has remuneration and this may be because they are considered as employees of the cooperative who man the activities and operations.

For the personnel-respondents, it is significant to note that all the items perceived to be "Very Much Effective" with mean ratings ranging from 4.37 to 4.63. The item "The general assembly is composed of members who are entitled to vote." got the highest mean rating of 4.63 described as "Very Much Effective". This means that the cooperative give due respect to the members since they are the owners of the cooperative. However, the item "There is a compensation to the officers and committee members" got the lowest mean rating of 4.37 described as "Very Effective". This means that remuneration of officers and officers were least considered and this may be because they are also members of the cooperative and whose goal is to help.

Moreover, with respect to the ratings of the member-respondents, the item "The responsibility of the board of the board of directors are stated on the by laws" received the highest mean rating of 4.27 described as "Very Much Effective" while the item "Quorum of meetings is 25% of all the members" received the lowest mean rating of 4.02 described as "Much Effective". This implies that board of directors responsibility are being laid down and stated by laws of the cooperative and this may be because they are governed by the existing laws of the cooperative. Further, the quorum was least considered and this may be because there are some members who do not attend to meetings and programs and activities of the cooperative.

**Table 5. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along Responsibilities, Rights and Privileges**

Responsibilities, Rights and Privileges	Manager		Personnel		Member		As a Whole	
		DR		DR		DR		DR
The cooperative has an official postal address								
The following books are kept open								
Code	4.67	VE	4.63	VE	4.17	MuE	4.49	<b>VE</b>
Regulations of the CDA	4.67	VE	4.63	VE	4.14	MuE	4.48	<b>VE</b>
Copy of the articles of cooperation	4.67	VE	4.50	VE	4.17	MuE	4.45	<b>VE</b>
A register of members	4.67	VE	4.38	VE	4.18	MuE	4.41	<b>VE</b>
The books of the minutes of the meetings	4.67	VE	4.50	VE	4.15	MuE	4.44	<b>VE</b>
Share books,	4.67	VE	4.62	VE	4.09	MuE	4.46	<b>VE</b>
7. Reports shall be made available	4.67	VE	4	MuE	4.13	MuE	4.27	<b>VE</b>

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8. Every director or officer handling funds shall be covered by surety bonds	5	VE	4.13	MuE	4.03	MuE	4.39	VE
9. The cooperative shall be exempted from any tax	4.67	VE	4.50	VE	3.97	MuE	4.38	VE
10. The cooperative has an official postal address to which all notices and communications shall be sent and it shall be registered with the authority.	4.67	VE	4.38	VE	4.08	MuE	4.38	VE
<b>Overall</b>	<b>4.70</b>	<b>VH</b>	<b>4.42</b>	<b>VH</b>	<b>4.11</b>	<b>H</b>	<b>4.41</b>	<b>VH</b>

Table 5 shows the "Very High" level of effectiveness of management of employees' cooperative in SUCs' in Region 1 along cooperative governance under representative and participants along administration with a mean rating of 4.41. This means that employees' cooperative in SUCs' of Region 1 organized and registered in accordance with laws on cooperatives.

For the manager-respondents, they perceived the item, "Every director or officer handling funds shall be covered by surety bonds" to be "Very Much Effective" ( $\bar{x} = 5$ ). This means that managers are proactive since they insure the funds of the cooperative. All other indicators were perceived to be "Very Much Effective" also, with mean ratings of 4.67 each.

For the personnel-respondents, the items "Code shall be kept open" and "Regulations of CDA are kept open" got the highest mean rating of 4.63, described as "Very Effective." This implies that cooperative books are intact and open to an interested party since the members own cooperatives. Meanwhile, the item "Reports shall be made available" got the lowest mean rating of 4, described as "Much Effective." This means that reports' availability was least considered, and this may be because they consider the cut-off of each report and the preparation period of such report.

Lastly, for the member-respondents, the item "Code shall be kept open" got the highest mean rating of 4.49 described as "Very Effective". This is in consonance with the latter findings that books of the cooperative are open to interested party. However, the item "Reports shall be made available" got the lowest mean rating of 4.02 described as "Very Effective." This means that reports are only available when necessary and as requested by officials and when the need arise.

### On Capital, Property, and Funds

Table 6 presents the item mean ratings of the level of effectiveness of the management of employees' cooperative along cooperative governance under representative and participants along capital property and funds as perceived by the managers, employees and members of the employees' cooperative.

**Table 6. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along Capital, Property and Funds**

Capital Property and Funds	Manager		Personnel		Member		As a Whole	
		DR		DR		DR		DR
The sources of the capital are the following:								
Members share capital	4.67	VE	4.63	VE	4.35	VE	<b>4.55</b>	<b>VE</b>
Loans and borrowings	4.67	VE	4.50	VE	4.21	VE	<b>4.46</b>	<b>VE</b>
Revolving capital	4.67	VE	4.75	VE	4.21	VE	<b>4.54</b>	<b>VE</b>
Subsidies	4.33	VE	4.38	VE	4.12	MuE	<b>4.28</b>	<b>VE</b>
Donations	4.33	VE	4.25	VE	4.06	MuE	<b>4.21</b>	<b>VE</b>
Grants	4	MuE	4.13	MuE	4.07	MuE	<b>4.07</b>	<b>MuE</b>
7. A cooperative may invest its capital	4	MuE	4.25	VE	4.16	MuE	<b>4.15</b>	<b>MuE</b>
8. The cooperative is subjected to annual audit	4.33	VE	4.13	MuE	4.23	VE	<b>4.23</b>	<b>VE</b>
9. The office carefully preserve all the records	4.33	VE	4.38	VE	4.17	MuE	<b>4.29</b>	<b>VE</b>
10. The accountant or the bookkeeper of the cooperative shall be responsible for the maintenance of the cooperative in accordance with generally accepted accounting practices.	4	MuE	4.38	VE	4.17	MuE	<b>4.18</b>	<b>MuE</b>
<b>Overall</b>	<b>4.33</b>	<b>VH</b>	<b>4.38</b>	<b>VH</b>	<b>4.17</b>	<b>H</b>	<b>4.29</b>	<b>VH</b>

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Table 6 shows that the level of effectiveness of management of employees' cooperative in SUCs' in Region 1 along cooperative governance under representative and participants along capital property and funds is "High" with a mean of 4.29. This means that employees' cooperative in SUCs' of Region 1 organized and registered in accordance with laws on cooperatives.

Considering the personnel-respondents, the item "Revolving capital is the source of capital" was perceived to be "Very Much Effective" ( $\bar{x} = 4.75$ ). This means that revolving capital had been the primary source of capital of the cooperative since it is formed by its members. Meanwhile, the item "Grants is the source of capital" was perceived to be "Much Effective" ( $\bar{x} = 4.13$ ). This means that grants and in other forms were least considered and this may be because cooperative does not receive any grant from other granting agencies and people.

And the member-respondents perceived the item "Members share capital as the source of the capital" to be "Very Effective" ( $\bar{x} = 4.35$ ). This is in consonance with the latter findings wherein share capital is the main source of funds by the cooperative in order to finance its operations. However, the items "A cooperative may invest its capital", "Grants as source of the capital" and "Donations as source of the capital" were perceived to be "Much Effective" ( $\bar{x} = 4.16, 4.07$  and  $4.06$ , respectively). This means that the cooperative least consider investing its capital and this may be because they have other source of income rather than investing it to other endeavors.

### On Allocation and Distribution of Net Surplus

Table 7 presents the level of effectiveness of the management of employees' cooperative along cooperative governance under representative and participants along allocation and distribution of net surplus as perceived by the managers, employees and members of the employees' cooperative.

**Table 7. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Governance and Management along Allocation and Distribution of Net Surplus**

Allocation and Distribution of Net Surplus	Manager		Personnel		Member		As a Whole	
		DR		DR		DR		DR
The Net surplus shall be determined by the general assembly	4.67	VE	4.38	VE	4.11	MuE	4.39	VE
There shall be an allocation to the following:								
2. Reserve fund	4.67	VE	3.87	MuE	4.07	MuE	4.39	VE
3. Education and training fund	4.67	VE	3.88	MuE	4.06	MuE	4.20	MuE
4. Community development fund	4.33	VE	3.88	MuE	4.04	MuE	4.08	MuE
5. Optional Fund	4.33	VE	4	MuE	3.98	MuE	4.10	MuE
6. Interest on share capital	4	MuE	4.38	VE	4.08	MuE	4.15	MuE
The net surplus shall be not be construed as profit but as an excess of payments made by the members for the loans borrowed.	4.33	VE	4	MuE	4.05	MuE	4.13	MuE
The general assembly may resolve the distribution of net surplus	3.67	MuE	4.37	MuE	4.06	MuE	4.02	MuE
In the case of non -member non patron, the proportionate amount of patronage refund shall be set aside in a general fund.	3.67	MuE	4.38	MuE	4.02	MuE	4.02	MuE
Any subscriber who has not fully paid his subscribed share capital or any non member patron who has accumulated the sum necessary for membership but does not request nor agree to become a member , the amount accumulated shall be credited to the reserve fund.	4.33	VE	4.38	MuE	4.02	MuE	4.24	VE
<b>Overall</b>	<b>4.27</b>	<b>VH</b>	<b>4.15</b>	<b>H</b>	<b>4.05</b>	<b>H</b>	<b>4.16</b>	<b>H</b>

The level of effectiveness of management of employees' cooperative in SUCs' in Region 1 along cooperative governance under representative and participants along allocation and distribution of net surplus received a mean rating of 4.16 described as "High." This means that employees' cooperative in SUCs' of Region 1 has a high level of practice along the allocation and distribution of the net surplus.

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The item "The Net surplus shall be determined by the general assembly" received a mean rating of 4.39 described as "Very Much Effective" while the item "In the case of non-member non patron, the proportionate amount of patronage refund shall be set aside in a general fund" received a mean rating of 4.02 described as "Much Effective." This implies that the general assembly is the highest body of the cooperative and this may be because they are also the decision makers of the employees cooperative of SUCs in region 1. Also, there are minimal transactions along non-member non patron and this may be because cooperatives were location within the vicinity of the SUCs.

Moreover, the personnel-respondents rated items "The Net surplus shall be determined by the general assembly", "Interest on share capital", "In the case of non-member non patron, the proportionate amount of patronage refund shall be set aside in a general fund" and "Any subscriber who has not fully paid his subscribed share capital or any non-member patron who has accumulated the sum necessary for membership but does not request nor agree to become a member, the amount accumulated shall be credited to the reserve fund" to be "Very Much Effective" with mean rating of 4.38 each item. This implies that the general assembly being the highest body in the cooperative determines the net surplus and this may be because they are the governing body and decision making body in the cooperative. However, they rated item "optional fund" to be "Much Effective" with a mean rating of 4. This implies that the cooperative least consider the allocation of operational fund and this may be because they had allocated budget for operations sustainability.

Lastly, for the member-respondents, they rated item "The Net surplus shall be determined by the general assembly" to be "Very Much Effective" with a mean rating of 4.39. This means that the general assembly are the decision makers of the cooperative since they are considered as the owners. Meanwhile, they rated item "Optional fund" to be "Much Effective" with a mean rating of 4.10. This implies that the cooperative find for operations is least considered and this may be because they have an allocated fund for their everyday operations.

**Table 8. Summary Mean Rating showing the Level of Management of Employees Cooperative of SUCs in Region I in terms of Cooperative Governance and Management**

Cooperative Governance and Management	Manager		Personnel		Member		As a Whole	
	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR
Organization and Registration	4.23	VH	4.22	VH	4.02	H	4.16	H
Membership	4.40	VH	4.56	VH	3.97	H	4.31	VH
Administration	4.63	VH	4.51	VH	4.20	H	4.45	VH
Responsibilities, rights and privileges	4.70	VH	4.42	VH	4.11	H	4.41	VH
Capital Property and funds	4.33	VH	4.38	VH	4.17	H	4.29	VH
Allocation and Distribution of Net Surplus	4.27	VH	4.15	H	4.05	H	4.16	H
Grand Mean	<b>4.43</b>	<b>VH</b>	<b>4.37</b>	<b>VH</b>	<b>4.09</b>	<b>H</b>	<b>4.30</b>	<b>VH</b>

It can be gleaned from Table 8 that the level of management of employees' cooperative of SUCs in Region I in terms of cooperative governance and management is "Very High" with a mean rating of 4.30. Considering the indicators, the administration received the highest rating of 4.45 described as "Very High" while the organization and registration and allocation and distribution of net surplus received the lowest rating of 4.16 each described as "High." This means that . . .

Taking per respondents, the manager-respondents perceived a "Very High" level of management in terms of cooperative governance and management, as backed up by the mean rating of 4.43. It is significant to note that all the indicators were perceived to be "Very High" level with mean ratings ranging from 4.23 to 4.70. Among the indicators, the responsibilities, rights and privileges received the highest mean rating of 4.70, described as "Very High." This implies that . . .

For the personnel-respondents, they perceived a "Very High" ( $\bar{x} = 4.37$ ) level of management along cooperative governance and management also. They perceived almost all the indicators to be "Very High" with means ranging from 4.22 to 4.56, with the membership having the highest rating. However, the allocation and distribution of net surplus got the lowest mean rating of 4.15 described as "High." This means that . . .

Lastly, the member-respondents rated a "High" level of management in terms of cooperative governance and management with a rating of 4.09. All the indicators were rated to be of "High" level with means ranging from 3.97 to 4.20 with the administration having the highest mean rating. This means that . . .

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### On Voluntary and Open Membership

Table 9 shows that the respondents assessed a "Very High" ( $\bar{x} = 4.36$ ) level of effectiveness of the management of employees' cooperative under cooperative operations along voluntary and open membership as perceived by the managers, employees and members of the employees' cooperative. This means that employees' cooperative in SUCs' of Region 1 organized and registered in accordance with laws on cooperatives.

**Table 9. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Voluntary and Open Membership**

Voluntary and Open Membership	Manager		Personnel		Member		As a whole	
		DR		DR		DR		DR
The cooperative is open to all personnel of the college/university	4.67	VE	4.75	VE	4.23	VE	<b>4.55</b>	<b>VE</b>
The members are willing to accept their responsibilities	4.67	VE	4.63	VE	4.19	MuE	<b>4.54</b>	<b>VE</b>
The cooperative doesn't discriminate the following: Gender Social affiliation. Race Political affiliation Religious organization	4.67	VE	4.63	VE	4.30	VE	<b>4.57</b>	<b>VE</b>
The cooperative is formed by the free choice of the persons who are members of it.	4.33	VE	4.38	VE	4.17	MuE	<b>4.29</b>	<b>VE</b>
The cooperative has set no arbitrary restrictions placed on persons wishing to become members	4.33	VE	4.25	VE	4.12	MuE	<b>4.23</b>	<b>VE</b>
The cooperative is organised for specific purposes	4.33	VE	4.38	VE	4.21	VE	<b>4.31</b>	<b>VE</b>
The members of the cooperative must also be willing to accept the duties that come with being a member	4.33	VE	4.50	VE	4.10	MuE	<b>4.20</b>	<b>MuE</b>
The cooperative is jointly owned and democratically controlled by persons who chose to join it	4.33	VE	4.62	VE	4.09	MuE	<b>4.35</b>	<b>VE</b>
In the cooperative, there should not be a high threshold to become a member	4.0	MuE	4.25	VE	4.14	MuE	<b>4.13</b>	<b>MuE</b>
Cooperative members are encouraged to make a contribution to the cooperative's capital	4.33	VE	4.63	VE	4.19	MuE	<b>4.38</b>	<b>VE</b>
<b>Overall</b>	<b>4.37</b>	<b>VH</b>	<b>4.52</b>	<b>VH</b>	<b>4.18</b>	<b>H</b>	<b>4.36</b>	<b>VH</b>

Taking per item, the indicator "The cooperative doesn't discriminate on: gender, social affiliation, race, political affiliation, and religious organization" received a rating of "Very Much Effective" ( $\bar{x} = 4.57$ ). This means that employees cooperatives of SUCs in region 1 do not choose whom will be their members and this may be because membership in a cooperative is open regardless of their status in life. Meanwhile, the item "In the cooperative, there should not be a high threshold to become a member" received a rating of "Much Effective" ( $\bar{x} = 4.13$ ). This implies that employees cooperative of SUCs in region 1 least considers the provision of high threshold to be a member and this may be because cooperatives provides for the benefit of all in the community.

More so, for the rating of manager-respondents, items "The cooperative is open to all personnel of the college/university," "The members are willing to accept their responsibilities," and "The cooperative does not discriminate" received a rating of "Very Much Effective" with a mean of 4.67 each item. This means that the cooperative membership is open and voluntary, and this may be because the more members the more fund for operations. Meanwhile, the item "In the cooperative, there should not be a high threshold to become a member" received a rating of "Much Effective" ( $\bar{x} = 4.0$ ). This means that the cooperative least consider a high threshold, and this may be because cooperatives membership dues and fees considers the capability of the potential members also to apply for membership.

For the personnel-respondents, all the items received a rating of "Very Much Effective." The item "The cooperative is open to all personnel of the college/university" received a rating of "Very Much Effective" ( $\bar{x} = 4.75$ ). This means that the employees' cooperative is open to all potential members in the college/university and since the entity is an employees'



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cooperative. However, the item "The cooperative has set no arbitrary restrictions placed on persons wishing to become members" got the lowest mean rating of 4.25 described as "Very Much Effective". This means that the cooperative disregarded restrictions and this may be because cooperatives membership is open to all who are willing to become a member.

For the member-respondents, the item "The cooperative doesn't discriminate" got the highest mean rating of 4.57 described as "Very Much Effective" while the item "The cooperative is jointly owned and democratically controlled by persons who chose to join it" got the lowest mean rating of 4.09 described as "Much Effective." Thus means that the employees' cooperative in Region 1 are non-discriminatory cooperatives since the goal of the cooperative is to uplift the lives of people in the community.

### On Democratic Member Control

**Table 10. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Democratic Member Control**

Democratic Member Control	Manager		Personnel		Member		Overall	
		DR		DR		DR		DR
The cooperative is controlled by the members	4	MuE	4.25	MuE	4.04	MuE	<b>4.10</b>	<b>MuE</b>
Members are actively participating in setting policies and setting decisions	4	MuE	4.13	MuE	4.01	MuE	<b>4.05</b>	<b>MuE</b>
Elected officers are accountable to the membership	4	MuE	4.13	MuE	4.07	MuE	<b>4.07</b>	<b>MuE</b>
Members have equal voting rights	4	MuE	4	MuE	4.21	VE	<b>4.07</b>	<b>MuE</b>
Members have equal voting rights (one member one vote)	4	MuE	4	MuE	4.23	VE	<b>4.08</b>	<b>MuE</b>
The cooperative requires the separation of democratic and executive powers, with checks and balances under the control of members.	4.33	VE	4	MuE	4	MuE	<b>4.11</b>	<b>MuE</b>
The cooperative encourages greater levels of participation	4.33	VE	4.25	VE	4.08	MuE	<b>4.22</b>	<b>VE</b>
The cooperative use innovative participative mechanisms	4.33	VE	4.38	VE	4.04	MuE	<b>4.25</b>	<b>VE</b>
The cooperative creates a culture that welcomes and encourages debate, rather than stifles it	4.33	VE	4.25	VE	4.05	MuE	<b>4.21</b>	<b>VE</b>
The cooperative stresses the right to vote on key strategic policy decisions and to participate in electing the representatives who control their co-operative's day-to-day business activities	4.67	VE	4.25	VE	4.06	MuE	<b>4.37</b>	<b>VE</b>
<b>Overall</b>	<b>4.20</b>	<b>H</b>	<b>4.18</b>	<b>H</b>	<b>4.08</b>	<b>H</b>	<b>4.15</b>	<b>H</b>

As seen in Table 10, there is a "High" ( $\bar{x} = 4.15$ ) level of effectiveness of management of employees' cooperative in SUCs' in Region 1 under cooperative operations along voluntary and open membership. This means that the cooperative has a high democratic control and practice and this may be because they serve and benefit members and potential members.

Taken per group of respondents, the manager-respondents assessed the item "The cooperative stresses the right to vote on key strategic policy decisions and to participate in electing the representatives who control their co-operative's day-to-day business activities" to be "Very Much Effective" ( $\bar{x} = 4.67$ ). This means that the cooperative practices right to vote and this may be because members are affected in the decisions and the employees of the cooperative consider the risk of the decisions and this might be reflected in the cooperative operations. Meanwhile, they assessed the items "The cooperative is controlled by the members", "Members are actively participating in setting policies and setting decisions", "Elected officers are accountable to the membership", "Members have equal voting rights", "Members have equal voting rights" and "Members have equal voting rights (one member one vote)" to be "Much Effective" ( $\bar{x} = 4.0$  each item). This implies that managers of the cooperative had assessed active participation of members as least considered and this may be because there are members who does not have an active participation in the operations of the cooperative and this may be because of some personal reasons for non-participation.

Personnel-respondents assessed the item "The cooperative use innovative participative mechanisms" to be "Very Much Effective" ( $\bar{x} = 4.38$ ). This means that the cooperative considered other innovative alternatives in the management of

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cooperatives. However, they assessed items "Members have equal voting rights", "Members have equal voting rights (one member one vote)" and "The cooperative requires the separation of democratic and executive powers, with checks and balances under the control of members" to be "Very Much Effective" ( $\bar{x} = 4.0$  each item). This implies that members voting rights are innate in a cooperative since the cooperative has been equally giving its members the right to vote and participate in the process of decision making.

And lastly, the member-respondents assessed the item "Members have equal voting rights" to be "Very Much Effective" ( $\bar{x} = 4.23$ ). This implies that the members has given the freedom to vote for the benefit of the cooperative and this may be because this has been one of the rights of the members as stipulated in the code of the cooperatives. Meanwhile, they assessed the item "The cooperative requires the separation of democratic and executive powers, with checks and balances under the control of members" to be "Much Effective" ( $\bar{x} = 4.0$ ). This means that the cooperative least considers separation of democratic and executive powers and this may be because decisions may be affected in order to have a checks and balances that could affect cooperative operations.

### On Member Economic Participation

As can be gleaned in Table 11, the level of effectiveness of the management of employees' cooperative under cooperative operations on member economic participation as perceived by the managers, employees, and members of the employees' cooperative is "High" with a mean rating of 4.06. This means that the cooperative has high regard for member economic participation.

**Table 11. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Member Economic Participation**

Member Economic Participation	Manager		Personnel		Member		As a whole	
		DR		DR		DR		DR
Members contribute equitably	4.33	VE	3.88	MuE	4.10	MuE	<b>4.10</b>	<b>MuE</b>
At least part of that capital is usually receiving limited compensation	4.33	VE	3.75	MuE	3.93	MuE	<b>4.00</b>	<b>MuE</b>
democratically control, the capital of their cooperative	4.33	VE	3.50	MuE	4	MuE	<b>3.94</b>	<b>MuE</b>
Members allocate surpluses for any or all of the following purposes:	4.33	VE	3.75	MuE	3.93	MuE	<b>4.00</b>	<b>MuE</b>
setting up reserve								
benefiting members in proportion to their transactions with the cooperative								
supporting other activities approved by the membership								
The cooperative exists to meet the needs of people, not primarily to generate a speculative return on capital invested in them	4.33	VE	4	MuE	3.94	MuE	<b>4.09</b>	<b>MuE</b>
The cooperative Membership shares that provide capital are not shares like those in investor-owned joint stock companies	4.67	VE	4	MuE	3.91	MuE	<b>4.19</b>	<b>MuE</b>
As cooperative prosper, create reserves, derived from the retained surpluses from the cooperative's activities.	4.33	VE	3.75	MuE	3.89	MuE	<b>3.99</b>	<b>MuE</b>
The cooperative has needs for capital far greater than what they can save from their economic activities	4.33	VE	3.87	MuE	3.91	MuE	<b>4.04</b>	<b>MuE</b>
Part of a cooperative's capital are either composed of retained surpluses or once subscribed by members as membership shares,	4.33	VE	3.88	MuE	3.92	MuE	<b>4.04</b>	<b>MuE</b>
Capital invested as a requirement of membership as shares that grant voting rights usually receives limited interest or compensation.	4.33	VE	4.13	MuE	3.99	MuE	<b>4.15</b>	<b>MuE</b>
<b>Overall</b>	<b>4.37</b>	<b>VH</b>	<b>3.85</b>	<b>H</b>	<b>3.95</b>	<b>H</b>	<b>4.06</b>	<b>H</b>

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Considering per group of respondents, the manager-respondents perceived all the items to be "Very Much Effective" with mean ratings ranging from 4.33 to 4.67. The item "The cooperative Membership shares that provide capital are not shares like those in investor-owned joint stock companies" was assessed to be "Very Much Effective" ( $\bar{x} = 4.67$ ). This means that cooperative is an entity being formed and for the sole purpose of the members welfare and it is not just like other corporation that is investor-owned joint stock companies.

The personnel-respondents perceived all the items to be "Much Effective" with means ranging from 3.5 to 4.13. The item "Capital invested as a requirement of membership as shares that grant voting rights usually receives limited interest or compensation" got the highest mean rating of 4.13 described as "Much Effective."

Moreover, the member-respondents perceived all the items to be "Much Effective" with mean ratings ranges from 3.89 to 4.10. "Members contribute equitably" with the highest mean rating of 4.10 described as "Much Effective". This means that the members shares in the cooperative are equitably distributed and accounted by the members. Meanwhile, item 7 "As cooperative prosper, create reserves, derived from the retained surpluses from the cooperative's activities." with the lowest mean rating of 3.89 described as "Much Effective". This implies that the members least consider surplus earnings and reserves and this may be because they are solely distributing dividends to its members.

Table 12 shows a "High" ( $\bar{x} = 4.02$ ) level of effectiveness of management of employees' cooperative in SUCs' in Region 1 under cooperative operations along autonomy and independence. This means that the cooperative is highly autonomous and independent.

As a whole, all the items received a rating of "Much Effective" with means ranging from 3.87 to 4.14. The item "The cooperatives do not exclude governments from recognising the value of co-operatives and supporting their development" received the highest mean rating of 4.14, described as "Much Effective." This implies that the government gives due credit and importance to cooperative contribution in nation building and its existence to realize and help members to increase and improve the value of their lives. Meanwhile, the item "The cooperative is not influenced by a key official of the university" got the lowest mean rating of 3.87, described as "Much Effective." This means that no official of the university does not influence the activities and operations of the cooperative and this may be because they respect the management of the cooperative.

**Table 12. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Autonomy and Independence**

Autonomy and Independence	Manager		Personnel		Member		As a whole	
		DR		DR		DR		DR
The cooperative is a self-help organizations controlled by their members.	4.33	VE	3.50	MuE	4.13	MuE	<b>3.99</b>	<b>MuE</b>
The cooperative is not influenced by a key official of the university	4.33	VE	3.25	MuE	4.04	MuE	<b>3.87</b>	<b>MuE</b>
The cooperative is capable of making it's own decision	4.33	VE	3.75	MuE	4.03	MuE	<b>4.04</b>	<b>MuE</b>
The cooperative can raise capital from external source by their members	4.33	VE	3.50	MuE	4.04	MuE	<b>3.96</b>	<b>MuE</b>
The cooperative is inherently useful to governments wishing to develop their national economies in ways that are economically, socially and environmentally sustainable.	4.33	VE	3.88	MuE	4.20	MuE	<b>4.14</b>	<b>MuE</b>
The cooperative has the freedom to act independently to govern themselves, control their own affairs and set their own rules of operation.	4.33	VE	3.50	MuE	4.07	MuE	<b>3.97</b>	<b>MuE</b>
The cooperative does not take risk independence and member democratic control by entering into any agreement that compromises the co-operative's autonomy.	4.33	VE	3.75	MuE	3.98	MuE	<b>4.02</b>	<b>MuE</b>
If they enter into agreements with governments and other organizations, they do so freely, on mutually acceptable terms that ensure their autonomy	4.33	VE	3.87	MuE	4.01	MuE	<b>4.07</b>	<b>MuE</b>

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In a cooperative, th a fair, level playing field needs to be created for co-operatives in national and international law, finance, tax and regulatory regimes.	4.33	VE	3.63	MuE	4	MuE	<b>3.99</b>	<b>MuE</b>
The cooperatives do not exclude governments from recognising the value of co-operatives and supporting their development.	4.33	VE	4	MuE	4.09	MuE	<b>4.14</b>	<b>MuE</b>
<b>Overall</b>	<b>4.33</b>	<b>VH</b>	<b>3.66</b>	<b>H</b>	<b>4.06</b>	<b>H</b>	<b>4.02</b>	<b>H</b>

Considering per group of respondents, there is a "Very High" ( $\bar{x} = 4.02$ ) level of management of employee's cooperative of SUCs in region I in terms of cooperative operations along autonomy and independence as assessed by the manager-respondents. This means that there is a high level of autonomy and independence among the cooperatives in region I. It is significant to note that they assessed all the items to be "Very Much Effective" with mean rating of 4.33 each. This implies that the cooperative are open for help and have their free will.

The personnel-respondents assessed the level of management of employee's cooperative of SUCs in region I in terms of cooperative operations along autonomy and independence to be "High" ( $\bar{x} = 3.66$ ). All the items received a "Much Effective" rating with means ranging from 3.25 to 4.0. The item "The cooperatives does not exclude governments from recognising the value of co-operatives and supporting their development" got the highest mean rating of 4 described as "Much Effective". This implies that the government recognize the presence of the cooperatives and this may be because cooperatives help to uplift the members standard of living and promotes decrease unemployment. On the other hand, item 2 "The cooperative is not influenced by a key official of the university" got the lowest mean rating of 3.25 described as "Moderately Effective". This implies that cooperative do not have any bias as to the manner of managing the activities and affairs of the cooperative.

Lastly, the member-respondents assessed a "High" ( $\bar{x} = 4.06$ ) level of management of employee's cooperative of SUCs in region I in terms of cooperative operations along autonomy and independence. All the items received a "Much Effective" rating with means ranging from 3.98 to 4.20. The item "The cooperative is a self-help organizations controlled by their members" received the highest mean rating of 4.13 described as "Much Effective". This means that cooperative are of great help to the members and since they are the primary recipients of the benefits and to the community. Meanwhile, the item "The cooperative does not take risk independence and member democratic control by entering into any agreement that compromises the cooperative's autonomy." received the lowest mean rating of 3.98 described as "Much Effective". This means that the cooperative sees to it that they check the risk involve and this may be because it affects cooperative competitiveness and operations.

Table 13 presents the "Very High" level of effectiveness of the management of employees' cooperative under cooperative operations along education, training and information as perceived by the managers, employees and members of the employees' cooperative, with a mean rating of 4.26. This implies that the employees' cooperatives in region I had a high level of provision to self-improvement and benefits to members.

**Table 13. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Education Training and Information**

Education, Training and Information	Manager		Personnel		Member		As a whole	
		DR		DR		DR		DR
The cooperative provides Education Training	4.33	VE	4.25	VE	3.97	MuE	<b>4.18</b>	<b>MuE</b>
The education and training is provided to: 2.1. members 2.2. Elected representatives 2.3. Managers 2.4. employees	4.33	VE	4.38	VE	3.93	MuE	<b>4.21</b>	<b>VE</b>
They inform the general public particularly young people and opinion leaders about the nature and benefits of cooperation.	4.33	VE	4.50	VE	3.99	MuE	<b>4.27</b>	<b>VE</b>
Cooperative education was the ingredient that transformed the vision and aspirations	4.33	VE	4.62	VE	3.94	MuE	<b>4.30</b>	<b>VE</b>

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Cooperative members understand the principles that are the creative foundation of all co-operatives and learn to apply them in today's fast changing world.	4.33	VE	4.38	VE	3.95	MuE	<b>4.22</b>	VE
The cooperative enables the development of a successful and sustainable co-operative enterprise	4.67	VE	4.50	VE	3.96	MuE	<b>4.38</b>	VE
The cooperative's commitment to education is not simply inward facing to members, elected members, managers and employees, but outward facing too.	4.33	VE	4.50	VE	3.96	MuE	<b>4.26</b>	VE
The cooperative develops the practical skills members and employees need to run a co-operative in accordance with efficient and ethical business practices and to democratically control their co-operative business responsibly and transparently	4.33	VE	4.38	VE	3.95	MuE	<b>4.22</b>	E
The cooperative fosters reciprocal, ongoing education programmes for members' leaders and employees so they can teach - and learn from - each other in understanding and carrying out their respective roles.	4.33	VE	4.38	VE	3.98	MuE	<b>4.23</b>	VE
The cooperative has a responsibility to inform the general public, particularly young people and opinion leaders, about the nature of the co-operative movement.	4.33	VE	4.50	VE	4.02	MuE	<b>4.28</b>	VE
<b>Overall</b>	<b>4.37</b>	<b>VH</b>	<b>4.44</b>	<b>VH</b>	<b>3.96</b>	<b>H</b>	<b>4.26</b>	<b>VH</b>

Taking per group of respondents, the manager-respondents assessed the item "The cooperative enables the development of a successful and sustainable co-operative enterprise" to be "Very Much Effective" ( $\bar{x} = 4.67$ ). This implies that the employees' cooperative in region I had effectively been a catalyst of change among the members and the community. It is significant to note that the rest of the items got a mean rating of 4.33 described as "Very Much Effective". This implies that the cooperative still considered some aspects of education training and information since employees' cooperatives fund were limited.

The personnel-respondents assessed the item "Cooperative education was the ingredient that transformed the vision and aspirations" to be "Very Effective" ( $\bar{x} = 4.62$ ). This suggests that the employees' cooperatives in region I prioritizes cooperative education and this may be because this could be a vehicle in improvements of the operations and promotes increase in revenue for the cooperatives out of the operations. All other items were assessed to be "Very Much Effective" with mean ratings ranges from 4.25 to 4.50.

The member-respondents rated all the items to be "Much Effective" with mean ratings ranges from 3.93 to 4.02. The item "The cooperative has a responsibility to inform the general public, particularly young people and opinion leaders, about the nature of the co-operative movement" got the highest mean rating of 4.02 described as "Much Effective". This means that the cooperative had marketing strategies to promote the cooperative and this may be because that the public be aware of the operations, products and services of the cooperative. Meanwhile, the item "The education and training is provided to members, elected representatives, managers and employees" got the lowest mean rating of 3.93 described as "Much Effective". This implies that the employees' cooperative in region I least consider the provision of training and education to employees and members and this may be because of the provision of funds might be limited only to operations.

**Table 14. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Cooperation among Cooperatives**

Cooperation among cooperatives	Manager		Personnel		Member		As a whole	
		DR		DR		DR		DR
The cooperative serves their members most effectively	4.67	VE	4.38	VE	4.12	MuE	<b>4.39</b>	VE
The cooperative strengthens the cooperative movement by working together	4.67	VE	4.25	VE	4.07	MuE	<b>4.33</b>	VE
The cooperative is affiliated through:								
Local	4.67	VE	4.25	VE	4.03	MuE	<b>4.32</b>	VE
Regional								

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National International structures								
The cooperative serves the members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.	4.33	VE	4.38	VE	4.03	MuE	<b>4.25</b>	<b>VE</b>
The cooperatives gain the expertise, scale, and support necessary to heighten awareness, sustainability, and impact, especially where fixed costs and resources can be shared.	4.33	VE	4.50	VE	4	MuE	<b>4.28</b>	<b>VE</b>
The cooperatives recognised the need to work together.	4.33	VE	4.38	VE	4	MuE	<b>4.24</b>	<b>VE</b>
The cooperatives cooperates with each other in competitive markets through forming co-operative groups, secondary co-operatives and federations to realise the co-operative advantage and create common wealth for mutual benefit	4.67	VE	4.25	VE	4	MuE	<b>4.31</b>	<b>VE</b>
Members benefit not only from the actions of their own co-operative but from the impact of its co-operative engagement and trade with other co-operatives.	4.33	VE	4.25	VE	3.99	MuE	<b>4.19</b>	<b>MuE</b>
The cooperative members are not only helping to build their own co-operatives but the wider co-operative movement	4.33	VE	4	MuE	4.01	MuE	<b>4.11</b>	<b>MuE</b>
The cooperative cooperates with other co-operatives to create wealth for the many, not personal wealth for the few through unbridled market competition.	4.33	VE	4.25	VE	4.01	MuE	<b>4.20</b>	<b>MuE</b>
<b>Overall</b>	<b>4.47</b>	<b>VH</b>	<b>4.29</b>	<b>VH</b>	<b>4.02</b>	<b>H</b>	<b>4.26</b>	<b>VH</b>

It can be seen in Table 14 the "Very High" level of effectiveness of management of employees' cooperative in SUCs' in Region 1 under cooperative operations along cooperation among cooperatives as backed up by its mean rating of 4.26. This means that the employees' cooperative in region I had been consistent in collaborating with other cooperatives in the locality.

For manager-respondents, they perceived items "The cooperative serves their members most effectively", "The cooperative strengthens the cooperative movement by working together" and "The cooperative is affiliated" to be "Very Much Effective" with mean rating of 4.67 each. This implies that employees' cooperative in region I creates a positive environment which lead to create good cooperativism amongst cooperatives. The rest of the items got a mean rating of 4.33 described as "Very Effective". This means that the employees' cooperative in region I has a high regard to cooperate amongst the non-government and government organizations and this may be because employees' cooperative needs this to grow and promote its products and services.

The personnel-respondents assessed the item "The cooperatives gain the expertise, scale, and support necessary to heighten awareness, sustainability, and impact, especially where fixed costs and resources can be shared." to be "Very Much Effective" ( $\bar{x} = 4.50$ ). This implies that the employees' cooperative in region I promote itself to be competitive by means of improving its expertise which could be a vehicle for them to grow. Meanwhile, they assessed the item "The cooperative members are not only helping to build their own co-operatives but the wider co-operative movement" to be "Much Effective" ( $\bar{x} = 4.0$ ). This implies that members of the employees' cooperative are not only benefited from the cooperative itself but also they are considered as nation builders.

The member-respondents rated the item "The cooperative serves their members most effectively" to be "Much Effective" with a mean of 4.12. This means that the employees cooperative in region I are serving their members to the best they can and this may be because they also want to satisfy totally their members. Meanwhile, they rated the item "Members benefit not only from the actions of their own co-operative but from the impact of its co-operative engagement and trade with other co-operatives" to be "Much Effective" with a mean of 3.99. This implies that the employees' cooperative has a wide scope of membership benefits and this could be attributed to other factors on the operations of the cooperative.

Table 15 presents the level of effectiveness of the management of employees' cooperative under cooperative operations along concerns for the community as perceived by the managers, employees and members of the employees' cooperative.



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**Table 15. Item Mean Rating showing the Level of Management of Employees' Cooperative of SUCs in Region 1 in terms of Cooperative Operations along Concerns for the Community**

Concerns for the Community	Manager		Personnel		Member		Overall	
		DR		DR		DR		DR
The cooperative work for sustainable development of their community	4.33	VE	4.75	VE	4.06	MuE	<b>4.38</b>	<b>VE</b>
There is a provision for community outreach	4.33	VE	4.25	VE	3.97	MuE	<b>4.18</b>	<b>MuE</b>
There is involvement in civic/community affairs.	4.33	VE	4.50	VE	4.01	MuE	<b>4.28</b>	<b>VE</b>
There is an established linkage in the community	4.33	VE	4.38	VE	3.96	MuE	<b>4.22</b>	<b>VE</b>
The cooperative is an economic entities trading goods and services.	4.33	VE	4.50	VE	4.02	MuE	<b>4.28</b>	<b>VE</b>
The cooperate with other co-operatives to create wealth for the many, not personal wealth for the few through unbridled market competition	4.33	VE	4.13	MuE	4.06	MuE	<b>4.17</b>	<b>MuE</b>
Members benefit not only from the actions of their own co-operative but from the impact of its co-operative engagement and trade with other co-operatives.	4.33	VE	4.38	VE	4.02	MuE	<b>4.24</b>	<b>VE</b>
The cooperative serve the members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.	4.33	VE	4.38	VE	4	MuE	<b>4.24</b>	<b>VE</b>
The cooperative actively co-operates in every practical way with other co-operatives, locally regionally, nationally and internationally.	4.33	VE	4	MuE	3.98	MuE	<b>4.10</b>	<b>MuE</b>
The cooperative gain the expertise, scale, and support necessary to heighten awareness, sustainability, and impact, especially where fixed costs and resources can be shared.	4.33	VE	4.13	MuE	4.07	MuE	<b>4.17</b>	<b>MuE</b>
<b>Overall</b>	<b>4.33</b>	<b>VH</b>	<b>4.34</b>	<b>VH</b>	<b>4.14</b>	<b>H</b>	<b>4.27</b>	<b>VH</b>

There is a "Very High" level of effectiveness of management of employees' cooperative in SUCs' in Region 1 under cooperative operations along concerns for the community as backed up by the mean rating of 4.27. This means that the employees' cooperative has a high regard in its community which it operates.

The manager-respondents perceived a "Very High" ( $\bar{x} = 4.33$ ) level of management of employees' cooperative of SUCs in region I. This means that the managers of the employees' cooperative has a high concern to the community. Of the indicators on concerns for the community, they perceived all the item to be "Very Much Effective" with mean rating of 4.33 each. This means that the managers has been doing its share in the community which the cooperative operates.

The personnel-respondents assessed the item "The cooperative work for sustainable development of their community" to be "Very Much Effective" ( $\bar{x} = 4.75$ ). This means that the employees' cooperative has been consistent in managing their operations and as a result it can be provide services to the community. On the other hand, they assessed the item "The cooperative actively co-operates in every practical way with other co-operatives, locally regionally, nationally and internationally" to be "Much Effective" ( $\bar{x} = 4.0$ ). This means that the employees cooperative in region I least consider actively cooperating in one way or another its participation in local, regional, national and international area and this may be because of limited involvement or this might be because of the need for a high funding requirement.

Lastly, the member-respondents rated the item "The cooperative gain the expertise, scale, and support necessary to heighten awareness, sustainability, and impact, especially where fixed costs and resources can be shared" with the highest mean of 4.07 described as "Much Effective". This means that employees' cooperative in region I had been consistent in gaining expertise and awareness and this may be because this is needed in the development and improvement of the cooperative operations. Meanwhile, they rated the item "There is an established linkage in the community" with the lowest mean of 3.96 described as

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"Much Effective". This means that linkages in least considered and this may be because of limited number of organizations and or non-government and government bodies that the cooperative operates.

**Table 16. Summary Mean Rating showing the Level of Management of Employees Cooperative of SUCs in Region I in terms of Cooperative Operations**

Cooperative Operations	Manager		Personnel		Member		As a Whole	
	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR
Voluntary and Open Membership	4.37	VH	4.52	VH	4.18	H	4.36	VH
Democratic Member Control	4.20	H	4.18	H	4.08	H	4.15	H
Member Economic Participation	4.37	VH	3.85	H	3.95	H	4.06	H
Autonomy and Independence	4.33	VH	3.66	H	4.06	H	4.02	H
Education, Training and Information	4.37	VH	4.44	VH	3.96	H	4.26	VH
Cooperation among Cooperatives	4.47	VH	4.29	VH	4.02	H	4.26	VH
Concern for the Community	4.33	VH	4.34	VH	4.14	H	4.27	VH
Grand Mean	<b>4.35</b>	<b>VH</b>	<b>4.18</b>	<b>H</b>	<b>4.06</b>	<b>H</b>	<b>4.20</b>	<b>H</b>

The table shows the summary of the level of management of employees' cooperative of SUCs in region I in terms of cooperative operations.

Taking per group of respondents, the manager-respondents assessed a "Very High" level of management along cooperative operations as backed up by the mean rating of 4.35. The cooperation among cooperatives was assessed to have the highest mean rating of 4.47 described as "Very High" while the democratic member control was assessed to have the lowest mean rating of 4.20 described as "High." Workable and practical financing program for members' provident needs; a program for promptly liquidating all its current borrowings; a fair policy on lending and collection; a vigorous members savings program; an effective program for building up co-op capitalization; an increasing volume of business; an established systems and procedures; and an honest and competent leadership and management staff.

The personnel-respondents comprehend a "High" level of management along cooperative operations. The voluntary and open membership received the highest rating of "Very High" ( $\bar{x} = 4.52$ ) while the autonomy and independence received the lowest rating of "High" ( $\bar{x} = 3.66$ ). This implies that these co-ops: subject themselves to periodic, unannounced audit; have sound and update bookkeeping and accounting systems; maintain clean, orderly, and updated files; are open to members' scrutiny of all co-op records and documents at all times during office hours; have responsible and competent officers and staff holding accountable positions; Welcome all recommendations, comments and observation to improve their systems and business operations; and are dynamic, flexible and willing to adopt new/improved systems and project;

Lastly, there is a "High" ( $\bar{x} = 4.06$ ) level of management in terms of cooperative operations as perceived by the member-respondents. It is significant to note that all the indicators were perceived to be of "High" level with mean ratings ranging from 3.95 to 4.18. The voluntary and open membership was perceived to have the highest mean rating of 4.18 described as "High". This means that in a cooperative, management also must strongly emphasize member relations because ownership, control, and patronage all are member functions. It means keeping members informed about policies, operating practices, and financial requirements; and pointing out their responsibilities for making the cooperative successful.

**Table 17. Summary Mean Rating showing the Level of Management of Employees Cooperative of SUCs in Region I**

Management	Manager		Personnel		Member		As a Whole	
	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR	$\bar{x}$	DR
Cooperative Governance and Management	4.43	VH	4.37	VH	4.09	H	4.30	VH
Cooperative Operations	4.35	VH	4.18	H	4.06	H	4.20	H
Grand Mean	<b>4.39</b>	<b>VH</b>	<b>4.28</b>	<b>VH</b>	<b>4.07</b>	<b>H</b>	<b>4.25</b>	<b>VH</b>

Table 17 shows that there is a "Very High" level of management of employees' cooperative of SUCs in region I with a mean rating of 4.25. The cooperative governance and management got the highest mean rating of 4.30 described as "Very High" as compared to the cooperative operations which only got a mean rating of 4.20 described as "High." This implies that the there is a good

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system in terms of cooperative governance and management of employees' cooperative of SUCs in region I, while they should improve further on cooperative operations.

Further, the manager-respondents rated a "Very High" ( $\bar{x} = 4.39$ ) level of management of employees' cooperative of SUCs in region I. They rated both the cooperative governance management and cooperative operation with a "Very High" level with mean rating of 4.43 and 4.35, respectively. This means that manager-respondents are confident with their self-assessment of their services in terms of cooperative governance management and cooperative operation

The member respondents perceived the level of management of employees' cooperative of SUCs in region I to be "High" ( $\bar{x} = 4.07$ ). The cooperative governance and management and cooperative operation both got a rating of "High" level with mean of 4.09 and 4.06 respectively.

Table 18 shows the "Very High" ( $\bar{x} = 4.33$ ) level of outputs of management of employees' cooperative in SUCs of Region 1 along generation of more products and services, increase volume of business operations, improvement of facilities and assets and better employee benefits.

**Table 18. Item Mean Rating showing the Level of Output of the Management of Employees Cooperative of SUC's in Region I**

Generation of more Productive/services	Personnel	
		DR
New products/services are created	4.38	VHO
New variety of products/services are created	4.13	HO
Provide better quality of products/services	4.51	VHO
Creates more supply of products/services	4.25	VHO
Products and or services are unique	4.50	VHO
<b>Overall</b>	<b>4.35</b>	<b>VH</b>
<b>Increases Volume of Business Operation</b>		
Additional programs /projects and introduced	3.87	HO
Better programs/project are implemented	3.75	HO
More availments from members	4.38	VHO
Expansion of market	4.13	HO
Increase in net surplus of the cooperative	4.25	VHO
<b>Overall</b>	<b>4.08</b>	<b>H</b>
<b>Improvement of Facilities and Assets</b>		
Acquisition of additional facilities and assets	4.50	VHO
Improvement of cooperatives facilities	4.75	VHO
Construction of new building or office	4.50	VHO
Purchase of lot for cooperative use	4.25	VHO
Purchase of Utility vehicle/service vehicle	4.12	HO
<b>Overall</b>	<b>4.45</b>	<b>VH</b>
<b>Better Employee Benefits</b>		
Maternity and paternity benefits are implemented in accordance with the law	4.50	VHO
The use of service incentive leaves are being observed	4.63	VHO
Salaries are in accordance with the mandated wage rate	4.25	VHO
Free Uniforms are provided to employees	4.38	VHO
Employees are provided with overtime pay	4.43	VHO
<b>Overall</b>	<b>4.43</b>	<b>VH</b>
<b>Grand Mean</b>	<b>4.33</b>	<b>VH</b>

**Statistical Range** 4-21- 5.00    **Item Descriptive Rating** Very High Output (VHO)    **Overall Descriptive Rating** Very High (VH)

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3.41-4.20	High Output (HO)	High (H)
2.61-3.40	Moderate Output (MO)	Average (A)
1.81-2.60	Low Output (LO)	Low (L)
1.00-1.80	No Output (NO)	Very Low (VL)

**On Generation of More Product/Services.** There is a "Very High" level of output on generation of more products/services as backed up by the mean rating of 4.35. This implies that the employees' cooperative had shaped and improved products and services.

Taking per item, the statement "Provide better quality of products/services" received the highest mean rating of 4.51 described as "Very High Output." This means that the employees' cooperative in region I had been providing quality products/services to the community and this may be because they had been improving it for a change and satisfy their end users. Meanwhile, the statement "New variety of products/services are created" received the lowest mean rating of 4.13 described as "High Output." This means that the employees' cooperative tries to create new products and services but they least considered and this may be because of the availability of innovations and fund for creation of new products and services.

**On Increases Volume of Business Operation.** There is a "High" ( $\bar{x} = 4.08$ ) level of output on increases volume of business operation. This means that there is a high degree of future expansion of the cooperative.

The item "More availments from members" got the highest rating of "Very High Output" ( $\bar{x} = 4.38$ ). This implies that there is a tendency that there will be more members that will avail the products and services of the employees' cooperatives in region I and this may be because of the quality services and products they offer. On the other hand, the item "Better programs/project are implemented" got the lowest rating of "High Output" ( $\bar{x} = 3.75$ ). This means that least considered outcome is along programs/projects and this may be because improvement of programs/projects have not been so progressive.

**On Improvement of Facilities and Assets.** There is a "Very High" level of output on improvement of facilities and assets with a mean rating of 4.45. This implies that there is a high instance of development along the cooperatives' facilities and assets as manifested by the increase and enhanced assets owned by the cooperatives.

The item "Improvement of cooperatives facilities" was perceived to be "Very High Output" with a mean of 4.75. This means that the employees' cooperative in region I had been receiving a great outcome of the good management of the employees' cooperative through the enhanced cooperative facilities. Meanwhile, the item "Purchase of Utility vehicle/service vehicle" was perceived to be "High Output" with a mean of 4.12. This suggests that the employees' cooperative good management can result to an increase in asset and could probably buy a vehicle which is beneficial to the organization.

**On Better Employee Benefits.** The level of output on better employee as benefits is "Very High" with a mean rating of 4.43. This implies that good management of employees' cooperative could give rise to more and satisfied employees since the cooperative could gain profit in its operations.

It is significant to note that all the items got the "Very High Output" rating with mean ranges from 4.25 to 4.63. The item "The use of service incentive leaves are being observed" got the highest mean rating of 4.63 described as "Very High Output." This implies that the employees' cooperative good management could promote a high morale of employees through giving of service incentive leaves which could satisfy ultimately employees.

Table 19 shows the "High" ( $\bar{x} = 3.90$ ) level of output of the management of employees cooperative of SUC's in Region I among the members along increase in income, patronage refund and interest on share capital. This means that there is a high degree of increase in income, patronage refund, and interest on share capital by the members of the employees' cooperative.

**Table 19. Item Mean Rating showing the Level of Output of the Management of Employees Cooperative of SUC's in Region I among the Members along Increase in income, Patronage Refund and Interest on share Capital**

Increase on Income, Patronage Refund and Interest on Share Capital	Members	
		DR
Presence of viable livelihood projects	3.77	HO
Patronage refund is an additional income to the members	3.95	HO
Patronage refund and interest on share capital encourages members to patronizes the services of the cooperative	3.94	HO
Patronage refund and interest on share capital are of great help in the budget of the family.	3.94	HO

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Patronage refund and and intrest on share capital serves as augmentation for the education of their children.	3.88	HO
<b>Over-all</b>	<b>3.90</b>	<b>H</b>

All the items received a "High Output" with mean ratings ranges from 3.77 to 3.95. The item "Patronage refund is an additional income to the members" got the highest mean rating of 3.95 describes as "Very High". This means that the employees' cooperative had been giving patronage refund to the members since members are the one's patronizing the products and services of the cooperatives. Meanwhile, the item "Presence of viable livelihood projects" got the lowest mean rating of 3.77 described as "High". This means that the employees cooperative in region I least consider having a livelihood project and this may be because they tend to have other programs other than livelihood.

Table 20 presents the level of impact of management of employees' cooperative in SUCs of Region 1 under internal environment along increase in revenue, increase in net surplus, increase in membership, and increase in services

**Table 20. Item Mean Ratings on the Level of Impact of the Management of Employees' Cooperative in Region I along the Internal Factors**

<b>Increase in Revenue</b>		<b>DR</b>
Sufficient funds for the volume of production	4.5	VHI
Generates more services needed by members	4.40	VHI
Constant expansion	4.25	VHI
Funds are properly utilized	4.40	VHI
Regular evaluation on present worth of the business	4.37	VHI
<b>Overall</b>	<b>4.40</b>	<b>VH</b>
<b>Increase in Net Surplus</b>		
Projects of the cooperatives are result oriented	4.50	VHI
Presence of workable productive projects	4.25	VHI
Projects sales, income and asset based on production and marketing.	4.38	VHI
Efficient and productive use of capital	4.38	VHI
Promising subscription to possible new members	4.37	VHI
<b>Overall</b>	<b>4.40</b>	<b>VH</b>
<b>Increase in Membership</b>		
Good quality of service in order to invite more members	4.50	VHI
Effective delivery of programs and projects	4.25	VHI
Transparency in the affair of the cooperative	4.38	VHI
Preserves the integrity through impartiality	4.38	VHI
Continuous development by introducing new concepts	4.75	VHI
<b>Overall</b>	<b>4.45</b>	<b>VH</b>
<b>Increase in services</b>		
Educational Loan	4.25	VHI
Service Credit Cooperative Store	4.50	VHI
Micro Loan Credit Financing	4.75	VHI
Emergency Loan	4.62	VHI
<b>Overall</b>	<b>4.47</b>	<b>VH</b>

### Statistical Range Item Descriptive Rating Overall Descriptive Rating

4-21- 5.00	Very High Impact (VHI)	Very High (VH)
3.41-4.20	High Impact (HI)	High (H)
2.61-3.40	Moderate Impact (MI)	Average (A)
1.81-2.60	Low Impact (LI)	Low (L)
1.00-1.80	No Impact (NI)	Very Low (VL)

**On Increase in Revenue.** It can be seen from the table that the level of impact on the increase in revenue is "Very High" with a mean rating of 4.40. This implies that there is a high impact on revenue as a result of good management of the employees' cooperative and this further implies that employees cooperatives good management can contribute to a good extent towards revenue generation. All the indicators received a Very High Impact rating with means ranging from 4.25 to 4.5. The item "Sufficient funds for the volume of production" got the highest mean rating of 4.50 described as "Very High". This means that the employees'

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cooperative good management can create a positive result along increase funds for the operations most especially to the production.

**On Increase Net Surplus.** There is a "Very High" level of impact backed up by over-all rating of 4.40. This means that there is a high degree of inflow of net surplus among the employees' cooperative in region I. All the items got a "Very High Impact" rating with means ranging from 4.25 to 4.5. Moreover, the item "Projects of the cooperatives are result oriented" got the highest mean rating of 4.50 described as "Very High". This implies that the employees' cooperative in region I's projects are results oriented and this may be because these projects are for the benefit of its members.

**On Increase in Membership.** It can be seen also from the table the "Very High" level of impact on increase in membership as backed up by the mean rating of 4.45. This means that the good management of the employees' cooperative can result to a high rate of membership. Moreover, all the items were assessed to have "Very High Impact" with mean ratings ranging from 4.25 to 4.75. The item "Continuous development by introducing new concepts" got the highest mean rating of 4.50 describes as "Very High". This means that the employees' cooperative were able to introduce developments and new innovations as a result of the continued good management of the operations.

**On Increased in Services.** The respondents perceived a "Very High" level of impact on increased in services, with a mean of 4.47. This means that there is a high level of service offerings by the employees' cooperative as a result of their good practices and operations. Considering the items, all of them perceived to have a "Very High Impact" with means ranging from 4.25 to 4.75. The item "Micro Loan Credit Financing" was perceived to have the highest mean rating of 4.75 describes as "Very High". This means that employees' cooperative can extent services like the micro loan credit financing and this may be because members of the cooperative need money to augment their daily expenses. Meanwhile, the item "educational loan" was perceived to have the lowest mean rating of 4.25 described as "High". This suggests that employees' cooperative in region I least consider services like educational loan and this may be because they have high educational attainment and can afford to send themselves to school.

**Table 21. Summary Mean Rating on the Level of Impact of the Management of Employees Cooperatives of SUCs in Region I along the Internal Factors**

Internal Factors	$\bar{x}$	DR
Increase in Revenue	4.40	VH
Increase in Net Surplus	4.40	VH
Increase in Membership	4.45	VH
Increase in Services	4.47	VH
Grand Mean	<b>4.43</b>	<b>VH</b>

It can be gleaned from Table 24 that the level of impact of management along internal factors of employees' cooperative of SUCs in region I is "Very High" with a mean of 4.43. All the indicators received a "Very High" rating with means ranging from 4.40 to 4.47. It is significant to note that the increase in services got the highest mean rating of 4.47.

Table 22 presents the level of impact of management of employees' cooperative in SUCs of Region 1 under external environment along increase in employment and increase in Tax

**Table 22. Item Mean Ratings on the Level of Impact of the Management of Employees' Cooperative in Region I along the External Factors**

Increase in employment		DR
The Cooperative provides better income generating opportunities to the local residents	4.50	VHI
The Cooperative provides fair recruitment practices that affords equal opportunities to all qualified ob seekers.	4.50	VHI
The cooperative provides safe and healthy atmosphere in the workplace conducive to physical and moral well-being and growth	4.50	VHI
Empowerment of employees and workers	4.50	VHI
<b>Overall</b>	<b>4.50</b>	<b>VH</b>
Increase in Tax		
The cooperative can generate taxable income	4.51	VHI
The cooperative is able to pay tax due on time	4.50	VHI



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There are penalties for tax violations committed	4.49	VHI
<b>Overall</b>	<b>4.50</b>	<b>VH</b>
<b>Grand Mean</b>	<b>4.50</b>	<b>VH</b>

It can be seen from the table that the level of impact of the management of employees' cooperative in Region I along the external factors is "Very High" ( $\bar{x} = 4.50$ ). This means that there is a very high impact on the external environment of the employees cooperatives in SUCs in Region 1 and this may be because good management can increase the number of employment and tax generation.

**On Increase in Employment.** There is a "Very High" level of impact on increase in employment as backed up by the mean rating of 4.50. This implies that the employees' cooperative in region I had been a great help to the community since it offers employment to the members of the community. All the items along increase in employment obtained a "Very High Impact" rating with mean of 4.50 each. This means that the employees' cooperative creates a great contribution and role in the society since they create jobs for the community.

**On Increase in Tax.** Further scrutiny of the table reveals that there is a "Very High" level of impact on increase in tax as backed up by the mean rating of 4.50. This means that the employees' cooperative had been contributory to the government since they also pay income taxes by the employees. The item "The cooperative can generate taxable income" obtained the highest mean rating of 4.51 described as "Very High Impact". This suggests that the cooperative generates taxes out of the taxable income of the employees. Meanwhile, the item "There are penalties for tax violations committed" obtained the lowest mean rating of 4.49 which is also described as "Very High Impact". This suggests that employees' cooperative in region I are less committing tax violations since cooperatives are tax exempted.

**Table 23. Summary Mean Rating on the Level of Impact of the Management of Employees Cooperatives of SUCs in Region I along the External Factors**

External Factors	$\bar{x}$	DR
Increase in Employment	4.50	VH
Increase in Taxes	4.50	VH
<b>Grand Mean</b>	<b>4.50</b>	<b>VH</b>

The overall mean rating of the respondents on the level of impact of management along external factors is "Very High" with a mean rating of 4.50. Considering the two indicators, all received a mean rating of 4.50 each described as "Very High." This means that. . .

### For the Members

**Table 24. Item Mean Ratings on the Level of Impact of the Management of Employees' Cooperative in Region I along Improve quality of Life**

<b>Improved Quality of Life</b>		<b>DR</b>
Members send their children to better school	3.58	HI
Members have changes in their social life	3.56	HI
Members have change s their social life	3.63	HI
Members improve their product	3.64	HI
Members acquire more assets (land, vehicles, etc.)	3.54	HI
Generates more income through the use of loans fro m the cooperative	3.62	HI
Engages in business operation	3.55	HI
Needs and wants are met and satisfied anytime anywhere.	3.63	HI
<b>Overall</b>	<b>3.59</b>	<b>H</b>

The data from Table 24 reveals a "High" level of impact on improve quality of life, with a mean rating of 3.59. This implies that the members had increased and improve the quality of their life.

It is significant to note that all the items received a "High Impact" rating with means ranging from 3.55 to 3.64. The item "Members improve their product" obtained the highest mean rating of 3.64 described as "High Impact". This implies that the members of the employees' cooperative got an advantage in improving their products and services since it can be an avenue for them for product improvement. Meanwhile, the item "Members acquire more assets (land, vehicles, etc.)" obtained the lowest

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mean rating of 3.54 also described as "High Impact". This means that the members least consider this impact and this may be because they had to spend their dividends to other priorities.

Table 25 shows the frequency of the management of employees' cooperative in region I along increase in household income, average in savings deposit and acquisition of properties and assets.

**Table 25. Frequency Count of the Management of Employees' Cooperative in Region I along Increase in household income, average increase in savings deposit and acquisition of properties and assets**

Acquisition of Household Assets/Properties (After membership in the cooperative)	<i>f</i>	%
House and Lot	248	100%
Car/motorcycle	248	100%
Television	248	100%
Refrigerator	248	100%
Computer/laptop	248	100%
Washing machine	248	100%
VCD/DVD player	248	100%
Karaoke/Cassette/radio	248	100%
Electric Fan	248	100%
Furniture and Fixtures	248	100%
Amount of House's Improvement/Renovation		
below Php. 10,000.00	14	5
10,000.00 -19,999.99	69	27.82
20,000.00- 29,999.99	4	1.61
40,000.00- 49,999.99	3	1.21
50,000.00-99,999.99	4	1.61
100,000.00 and above	154	62.10
<b>Total</b>	<b>248</b>	<b>100%</b>

The table above shows the increase in household income, average increase in savings deposit, and acquisition of properties and assets. It can be seen from the table that all (248 or 100.00%) had acquired household assets/properties (after membership in the cooperative). This means that the employees' cooperative is of great help in each member since the standard of their living also increases and has acquired some assets for their respective household derived from the cooperative.

**On Amount of House's Improvement/Renovation.** The majority (154 or 62.1%) of the respondents spent Php 100,000.00 and above for house improvement/renovation while the least (three or 1.2%) spent Php 40,000.00 – 49,000.00 on house improvement/renovation. This means that the employees' cooperatives in region I members are middle-class earners since they spend 100,000 and above. According to interviews conducted by the researcher to the members, being a member of an employees' cooperative is a great opportunity for them to increase their standard of living for which they can acquire more assets and finance the improvement of their houses.

## FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

### Findings

Based on the data gathered, tabulated, analyzed, and interpreted, the following findings were drawn:

#### 1. The level of management of employee's cooperative SUCs of Region 1

##### 1.1. Cooperative Governance and Management

1.1.1. On organization and registration. There is a "High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

1.1.2. On membership. There is a "Very High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

1.1.3. On administration. There is a "Very High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

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1.1.4. On responsibilities, rights and privileges. There is a "Very High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

1.1.5 On capital property and funds. There is a "Very High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

1.1.6 On allocation and distribution of net surplus. There is a "High" level of management of employees' cooperative of SUCs in Region 1 along cooperative management and organization.

The overall rating of the respondents on the level of management along cooperative governance and management is "Very High."

### **1.2. On Cooperative Operation**

1.2.1 On voluntary and open membership. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "Very High."

1.1.2. On democratic member control. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "High."

1.1.3. On member economic participation. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "High."

1.1.4. On autonomy and independence. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "High."

1.1.5 On education, training and information. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "Very High."

1.1.6 On cooperation among cooperatives. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "Very High."

1.1.7 On concern for the community. The level of management of employees' cooperative of SUCs in Region 1 along cooperative operations is "Very High."

The overall rating of the respondents on the level of management along cooperative operation is "High."

## **2. Level of Output of Employees Cooperative SUCs of Region 1**

### **2.1. For Cooperative**

2.1.1. On generation of more productive services. The respondents perceived a "Very High" level of output on generation of more productive services of employees' cooperative of SUCs in Region I.

2.1.2. On Increase volume of business operation. The respondents perceived a "High" level of output on increases volume of business operation of employees' cooperative of SUCs in Region I.

2.1.3 On improvement of facilities and assets. The respondents perceived a "Very High" level of output on improvement of facilities and assets of employees' cooperative of SUCs in Region I.

2.1.4. On better employee benefits. The respondents perceived a "Very High" level of output on better employee benefits of employees' cooperative of SUCs in Region I.

The overall level of output of the employees' cooperatives of SUCs in region I is "Very High."

### **2.2. For member**

2.2.1. On increase on income, patronage refund, and interest on share capital. There is a "High" level of output on increase on income, patronage refund and interest on share capital of employee's cooperative of SUCs in Region I.

## **3. Level of Impact on effectiveness of Employees' cooperative of SUCs in Region I**

### **4.1. Internal Environment**

3.1.1. On increase in revenue. The respondents rated a "Very High" level of impact on increase in revenue.

3.1.2. On increase on net surplus. The respondents rated a "Very High" level of impact on increase on net surplus.

3.1.3. On increase on membership. The respondents rated a "Very High" level of impact on increase on membership.

3.1.4. On increase in services. The respondents rated a "High" level of impact on increase in services.

The overall rating of the respondents on the level of impact of the management of employees' cooperative of SUCs in Region I along the internal factors is "Very High."

### **3.2. External Factors**

3.2.1 On increase in Employment. The respondents rated a "Very High" level of impact on increase in employment.

3.2.2 On increase in Taxes. The respondents rated a "Very High" level of impact on increase in taxes.

The overall rating of the respondents on the level of impact of the management of employees' cooperative of SUCs in Region I along the external factors is "Very High."

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**3.3 On improve quality of life.** The respondents rated a "Very High" (Mean= 4.50) level of impact of employees' cooperative of SUCs in Region 1.

**3.4 On acquisition of Household Assets/Properties.** All respondents were able acquire household assets and properties upon membership in the cooperative.

**3.5. On House Improvement and Renovations.** Majority of the respondents were able to spend 100,000 and above for house improvement and renovation.

### Conclusions

Based on the findings of the study, the researcher arrived at the following conclusions

1. The Level of the management of employee's cooperatives in SUC's of Region I are highly implemented of effectiveness in terms of cooperative governance and operations.
2. The outputs of the employees' cooperatives of SUC's in Region I had increase of volume of business operation, improvement of facilities and assets, better employee benefits, and increase of income on members. As a result, there is an increase on revenue, net surplus, and membership, the quality of life to members were achieved.
3. The level of implementation of the effectiveness of employees in cooperative of SUC's in Region I was significantly influenced by the cooperative. Furthermore, the employee's cooperative considers that there is a good management.

### Recommendations

Based on the findings and conclusions, the researcher recommends the following to improve the level of effectiveness of management of employees' cooperative of SUCs in Region 1.

1. In order to generate more, it is suggested that the cooperative may consider the expansion and strengthening the linkages to other non-government organization for future plan attribute on the operations of the cooperative.
2. Since the level of outputs of the employees has the lowest rating to new variety of products/ services are created, it is suggested that the cooperative may look into possible opportunities for innovations and creation of new products and services for the improvement of programs/ projects.
3. A continuous increase of employment should be taken into action because more members mean more contribution and jobs for the community. The management should always consider that the more persons to cooperate, the better for the cooperative to extent revenue generation.
4. It is recommended that members of the cooperative should also require the general assembly to attend trainings relative to the cooperative development for higher level of effectiveness.
5. A follow up study should be conducted on the SUCs or other institutions cooperative in order to determine some strategies on the management of employees' cooperative.

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## Mortgage Encumbrance of Ships in Bank Credit Agreements Reviewed From Legal Certainty



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**ABSTRACT:** The bank when granting or disbursing credit is usually preceded by an agreement called a draft loan agreement. In the credit agreement, collateral is included, as a guarantee when repaying credit if the debtor defaults. In banking practice, especially credit problems, various collateral institutions are known, each of which has different characteristics. Meanwhile, in terms of objects, there are collateral institutions that own movable and inanimate objects. The formulation of the problem in this paper is How is the encumbrance of ship mortgages in bank credit agreements viewed from the perspective of legal justice? The type of research used in this research is normative law. Procedures for encumbering mortgages on ships in bank credit agreements registered holders and registrars review the completeness of administration in less than 5 (five) days from the time the application documents have been summarized. Vessels that have been entered in the shipping list as well as other vessels in process and parts of such vessels can be granted mortgage rights.

**KEYWORDS:** Mortgage; Sea Ship; Agreement; Bank Credit; Legal Certainty.

### I. INTRODUCTION

Indonesia is geographically an archipelago with two-thirds more ocean area than land. This can be seen with the coastline on almost every island in Indonesia ( $\pm$  81,000 km) which makes Indonesia second only to Canada as the country with the longest coastline in the world. This strength is a great potential to advance the Indonesian economy.<sup>1</sup>

In order to support and accelerate the Indonesian economy, especially the economy of small islands, the transportation network system needs to be developed seriously, because the integration of the transportation network with land, sea and air transportation modes will become a bridge for economic growth and development in the surrounding area. This is a necessity. Sea transportation/inter-island shipping is the lifeblood of the economy and connects Indonesians with other nations. Therefore, priority should be given to the domestic shipping industry. This is important to improve Indonesia's competitiveness in the world market.<sup>2</sup>

One form of business activity in Indonesia that cannot be separated from credit activities and the need for guarantees, is activities related to ships, namely shipping activities, of course this is because Indonesia is an archipelago.<sup>3</sup> In running a shipping business, it is not far from the construction and development of a fleet and of course requires a lot of capital or funds. The funds or capital can be obtained one of them by way of credit.

Banks as one of the financial institutions that have the most strategic role in society, aim to raise funds from the community in the form of savings, deposits, demand deposits, or others and channel them back in the form of lending to the community, either productive or consumptive credit, therefore banks are said to be agents of trust (agents of trust for the government and community development) and as agents of development (development agents).<sup>4</sup> To maintain the health of credit business institutions, especially banks, this credit business should also be accompanied by guarantees, this aims to provide security in providing credit and certainty of credit repayment. So it is appropriate that the giver and recipient of credit, as well as other parties

<sup>1</sup> Zulham, 2013, *Hukum Perlindungan Konsumen*, Kencana Prenada MediaGroup, Jakarta, p. 1.

<sup>2</sup> Ety R. Agoes, 1991, *Konvensi Hukum Laut 1982 dan Masalah Pengaturan Hak Lintas Kapal Asing*, Abardin, Bandung, p. 164.

<sup>3</sup> Fani Martiawan Kumara Putra, "Surat Kuasa Memasang Hipotek Dalam Jaminan Hipotek Kapal Laut", *Perspektif*, Vol.17, No.2, 2012, p. 98.

<sup>4</sup> Yulianto, 2004, *Tanggung Jawab Notaris dalam Membuat Akta Jaminan Kredit PerBankan*, Mitra Usaha Abadi, Surabaya, 2004, p.1.



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involved in it get protection through a guarantee institution that can provide legal certainty for all parties involved in the credit business.<sup>5</sup>

Article 1162 of the Civil Code is "A property right over immovable property that is used as collateral in the repayment of an obligation." The definition of Article 1162 of the Civil Code is a property right over an immovable object to take change from the object for the repayment of a debt. From there, the right of mortgage arises, which is a property right that gives power over an object but not for use or use, but to be used as collateral for debt. This guarantee is one form of the prudential principle that must be applied by banks as the intended credit institution, regulated in Article 2 of Law No. 7 of 1992 concerning Banking, as amended by Law No. 10 of 1998 concerning Banking (hereinafter referred to as the Banking Law) states "Indonesian banking in conducting its business is based on economic democracy using the prudential principle". The prudential principle is further regulated in Article 29 paragraph (2) of the Banking Law which stipulates that banks are obliged to maintain a sound level of bank health in accordance with capital adequacy, asset quality, management quality, liquidity, and profitability, solvency, and other aspects related to the bank's business, and must conduct business activities with this prudential principle.

Collateral law is closely related to the fields of property law and banking. The field of banking law is linked to collateral lies in the function of banking, namely the collection and distribution of funds for the community, one of its efforts is to provide credit. Credit is a supporting factor for economic development.<sup>6</sup> As the name implies, namely guarantee, it is necessary to have an object or object that will be pledged to convince and obtain funds from the lender (creditor). The guarantee institution itself has actually been known since the existence of the Burgerlijk Wetboek (hereinafter abbreviated as BW). Based on BW, the division of objects is one of the important things, and the most important division of objects in BW is movable and immovable objects.<sup>7</sup>

Bezwaar (guarantee) distinguishes between movable and immovable objects. For movable objects, the guarantee institution is Gadai (regulated in Articles 1150-1160 BW), or Fiduciary (regulated in Law No. 42 of 1999 concerning Fiduciary (hereinafter referred to as UUJF)), and for immovable objects, the guarantee institution available is Mortgage (regulated in Articles 1161-1232 BW), or Mortgage (regulated in Law No. 4 of 1999 concerning Mortgage Rights (hereinafter referred to as UUHT)).<sup>8</sup> Currently, due to the birth of the UUHT, mortgage guarantees can only be imposed on non-land immovable objects, such as ships, airplanes.<sup>9</sup> Another security right that is widely used today to obtain business capital from creditors is to use a security object based on trust, while the security object remains in the hands of the owner of the goods, namely through a mortgage on the ship, as regulated in Article 1162 to Article 1232 of the Civil Code (referred to as KUHPdata), Article 314 to Article 316 of the Commercial Code (referred to as KUHD), Law No. 17 of 2008 concerning Shipping, Government Regulation No. 51 of 2002 concerning Shipping, and Minister of Transportation Regulation No. 13 of 2012. Historically, mortgages were applied as collateral attached to all immovable objects, in its development, land security as one of the immovable objects has been regulated in Law No. 4 of 1996 Mortgage Rights on Land and Objects Related to Land. Movable objects that can still be used as objects of mortgages include ships with a gross content size of at least 20m<sup>3</sup>. In a legal context, a mortgage as stipulated in Article 1162 of the Civil Code is an important right to property that is used as collateral for the repayment of a contract. Currently in Indonesia, ship mortgages are subject to the Shipping Act of 2008, the Commercial Code and also International Conventions that have been ratified by Indonesia, namely the International Convention on Maritime Receivables and Mortgages 1993. The regulation of mortgages contained in the Civil Code is also partially applicable to marine mortgages. Article 315 d of the Civil Code provides that if a ship is no longer an Indonesian ship. Law No. 17/2008 on Shipping has expressly stipulated that the official authorized to carry out encumbrance, deed-making and registration of marine vessel mortgages is the Registrar and Recorder of Vessels at the place where the vessel is registered, who is an official at the relevant port office. In practice, the Registrar and Recorder of Vessels is often referred to as Syahbandar. So far, the process of encumbering ship mortgages in banking credit agreements has been carried out by Syahbandar. Syahbandar has the authority as an official appointed by the State through the law. While there is a mortgage deed that must be made by a mortgage maker official. How is the authenticity of the deed made by the syahbandar, associated with the obligations and authority of the Notary as an authentic deed official. The law on the office of Notary does regulate the authority of Notary. Notary has skills This notary authority shows that the Notary has the ability and comprehensive knowledge of civil law acts, especially in making a deed that is able to protect the parties involved in it. The notary's authority to make agreements also includes the making of bank credit agreement deeds. The collateral institutions that apply in general are fiduciary security institutions and or mortgages. collateral institutions have the task of launching and securing the provision of credit or

<sup>5</sup>*Ibid.*, p. 89.

<sup>6</sup> Dwi Tatak Subagiyo, 2018, *Hukum Jaminan Dalam Perspektif Undang-Undang Jaminan Fidusia*, UWKS, Surabaya, p. 80.

<sup>7</sup> Fani Martiawan Kumara Putra, "Benturan Antara Kreditor Privilege Dengan Kreditor Preferen Pemegang Hipotek Kapal Laut Terkait Adanya Force Majeure", *Jurnal Perspektif*, Vol. 18, No.1, 2013, p. 32.

<sup>8</sup>*Ibid.*

<sup>9</sup>*Ibid.*

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financing, so good (ideal) collateral is: which can easily help obtain financing / credit by those who need it.<sup>10</sup> The execution of a marine ship mortgage usually involves several stages: The shipowner and the lender (bank or financial institution) reach an agreement on the loan amount, interest rate, and other terms, the execution of a marine ship mortgage must comply with the applicable maritime regulations and laws in Indonesia. In this case, the involvement of experienced maritime law experts and financial consultants is highly recommended to ensure that all procedures are carried out correctly and fulfill a sense of justice. From the aforementioned background, the author is interested in compiling a paper on the enforcement of marine ship mortgages in bank agreements from the perspective of legal justice.

### **II. RESEARCH METHOD**

Based on the identification of the problem as described earlier, this research is a normative legal research, therefore this research will use normative research methods. The subject matter will be studied juridically normative and juridically philosophical with a systemic and comparative juridical approach. The nature of this research is descriptive, namely describing the overall object that is explored and collected systematically. The approaches used in this research are statute approach and conceptual approach. In this research, library materials in the form of secondary data are used as the main source. Secondary data includes: a. Primary legal materials: the binding legal basis derived from the state constitution, both written and unwritten, as well as other norms governing the lawmaking system. b. Secondary legal materials: materials that explain primary legal materials, such as draft laws, theses, dissertations, and other research. c. Tertiary legal materials, which are materials that help interpret and explain primary and secondary legal materials, such as dictionaries and encyclopedias. This variety of data can be obtained through desk research or online data searches. Data collection provides verification, correction, supplementation, and itemization of each other. It will be analyzed qualitatively once collected.

### **III. RESULT AND DISCUSSION**

#### **Mortgage Enforcement of Sea Vessels in Bank Credit Agreements Viewed from Legal Certainty**

The word "guarantee" in the Legislation can be found in Article 1131 of the Civil Code and its explanation in Article 8 of Law No. 7 of 1992 as amended by Law No. 10 of 1998 concerning Banking, but these two regulations do not explain what is meant by guarantee. However, it can be seen that a guarantee is related to debt problems, where in a money lending agreement the creditor asks the debtor to provide collateral in the form of a number of assets for debt repayment, which if the debtor does not pay off the debt within the agreed time. In the understanding so far, it has become common knowledge that credit guarantee (granting) is the last alternative source of credit repayment in the event that the credit cannot be repaid by the debtor customer from his business activities because his business activities have difficulty making money. By giving the meaning of "credit guarantee" as "the bank's confidence in the debtor's ability to repay the credit in accordance with the agreement", the meaning of "credit guarantee" has shifted, so that it is no longer in accordance with its commonly recognized meaning so far.<sup>11</sup> The value of a guarantee given to the creditor usually exceeds the value of the credit, this is done by the creditor so that he is protected from losses. So, when a credit jam occurs, the bank can use or sell the credit guarantee to pay or cover the bad credit. The purpose of the credit guarantee here is to protect the bank from bad customers, because only a few customers are capable but do not pay their credit. The point is that the credit guarantee here is the binding of the debtor to the creditor with the debt owned by the debtor's property guarantee, so that the debtor does not run away from his debt. From the description above, it can be concluded that collateral is a debt repayment by the debtor to the creditor if in the future there is a congestion in the payment of the debtor's debt with a number of assets owned by the debtor in accordance with the agreement that has been made according to the applicable laws and regulations. In order for the encumbrance of this mortgage to fulfill justice, the encumbrance of the mortgage guarantee is made with a ship mortgage deed by the registrar and Recorder of Ship Names in the place where the ship is registered and recorded in the Ship Master Register. A ship can be used as a mortgage object must meet the criteria of the definition of a ship contained in Article 1 number 36 of Law No.17 of 2008 concerning Shipping. A ship can be used as mortgage collateral or charged with a mortgage must be registered in the ship register. The documents that must be completed for ship registration are:<sup>12</sup>

1. submit an application letter to the registrar;

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<sup>10</sup>Khanifa, Nurma Khusna. "Jaminan Akad Murabahah di Lembaga Keuangan Syariah Kajian Hukum Perdata" Az-Zarqa': Jurnal Hukum Bisnis Islam, Vol. 7, No. 2, 2015, p. 259.

<sup>11</sup>*Ibid.*, p. 12.

<sup>12</sup> Republik Indonesia, *Undang-Undang Nomor 17 Tahun 2008 tentang Pelayaran*, Lembaran Negara Republik Indonesia Tahun 2008 Nomor 64, Tambahan Lembaran Negara Republik Indonesia Nomor 4849, Pasal 60 ayat (1).

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2. proof of ownership of the vessel;
3. identity of the owner
4. measurement letter (temporary/permanent);
5. proof of payment of BBN; and
6. deletion certificate, specifically for vessels that have been registered abroad (Directorate General of Sea Transportation).

If the documents contained above have been completed by the applicant, then the registrar's official makes a minuta deed and grosse deed of ship registration. The grosse deed or a copy of the minuta deed, which is only signed by the assistant officer for the registration and transfer of the name of the ship. If this assistant employee is absent, it can be signed by the registrar. This grosse deed is given to the owner after the registrar's sign is installed, as proof that the ship has been registered and also functions as proof of ship ownership rights (BHMK). Mortgage is also a material security that gives rise to property rights, where this property right has an absolute nature that can be enforced with anyone. Another characteristic of this property right is the principle of droit de preference where the mortgage holder has the right to take precedence over other creditors, especially in the introduction of the mortgage..Payment of the debt. An object can be used as collateral is must have economic value and can be transferred in accordance with Article 499 of the Civil Code: "Property is every item and right that can be controlled by property rights".<sup>13</sup>Ship owners must also know in advance about the classification of ships regulated in Law No. 17 of 2008 concerning Shipping in Article 4 of the ship classification, namely; wind-driven ships are sailing ships, ships driven by mechanical power are ships that have movement in the form of engines, and ships that are towed are those that move with the help of other ship propulsion devices. It is stated in Article 2 paragraph (1) of the Regulation of the Government of Transportation of the Republic of Indonesia Number 39 of 2017 concerning ship registration and nationality, that ship registration includes registration of property rights; mortgage encumbrance; and registration of other property rights on ships. Registration of ship rights means registration of ownership rights to the ship. This registration is a legal basis that provides evidence of the certainty of the owner's rights and also evidence for other parties who owns the ship and all rights arising as a result of such ownership.Article 154 of the Shipping Law states that the legal status of the ship can be determined through the process of measuring the ship, registering the ship, and determining the nationality of the ship, where each ship before being operated must be measured by an authorized government official. In Article 162 of the Shipping Law, it is explained that ships registered in Indonesia and sailing at sea are given an Indonesian Ship Nationality Certificate by the Minister. The nationality certificate gives the ship the right to sail under the flag of the country whose nationality is owned by the ship, so that ships holding the Indonesian nationality mark are Indonesian Sea Ships. The letter is given in the form of a Sea Letter for vessels of GT 175 (one hundred seventy-five grosse tonnage) or more; a Large Pass for vessels of GT 7 (seven grosse tonnage) up to less than GT 175 (one hundred seventy-five grosse tonnage); or a Small Pass for vessels of less than GT 7 (seven grosse tonnage).<sup>14</sup>The registration of a ship in a ship register, which serves as a place of announcement, is closely related to the preparation of information about the ship and its ownership in the national registration book because it relates to the nationality of a ship, the jurisdiction of the ship and the issue of encumbrance of the ship. Not being registered will follow the legal provisions regarding movable objects and the guarantee institution is fiduciary. Ship registration as referred to in the Shipping Law includes ships that are still in the process of being built, property rights over ships, internal parts of ships and other property rights. Mortgage security must be encumbered and registered. The Shipping Law in Article 60 paragraph (2) states that: "The encumbrance of a mortgage over a ship is carried out by the drawing up of a mortgage deed by the Registration Officer and the Registrar of Vessel Names at the place where the ship is registered and recorded in the Master Register of Ship Registration". Mortgages are registered at the Syahbandar office.The process of encumbering a vessel involves both parties, the attorney, the notary and the Syahbandar. The process of encumbrance until the ship can be charged with a mortgage is as follows:<sup>15</sup>

1. Check with the port office where the vessel is registered. The notary must check the validity of the original gorse deed, the copy of the measurement letter, the documents of the PT concerned. The check must be made where the ship is registered. For example, if the ship is registered in Tanjung Priok, it must be checked with the Syahbandar Tj.Priok. The check is done so that when the notary will make a deed of power of attorney to install a mortgage, the notary can find out the authenticity of the grosse deed. The check is also carried out to find out whether the ship is not in dispute or is encumbered by a mortgage from another party.
2. After checking, the shipowner authorizes a notary to make a Deed of Power of Attorney to Attach Mortgage and signed by the

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<sup>13</sup> H.Salim HS., 2014, *Perkembangan Hukum Jaminan di Indonesia*, RajawaliPers, Jakarta, p. 205.

<sup>14</sup> Tjitrosudibio,dan Subekti, 2017, *Kitab Undang-Undang Hukum Perdata*, PT BalaiPustaka, Jakarta, p. 499.

<sup>15</sup> *Ibid* . p.33

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parties, usually signing together with the signing of the credit agreement deed.

3. After signing the SKMH, the notary or his proxy is tasked with registering it with the intended Syahbandar and then the syahbandar will issue a Ship Mortgage Deed. To carry out the deed, the following documents are required.
4. The application letter and all documents are given to the Syahbandar and then checked, if there are no conditions or documents missing the application letter will be processed approximately 4 working days after the application letter is received.
5. After the inspection, the Syahbandar will confirm about the vessel that there is no dispute and that it is not under mortgage from another party. The ship's mortgage deed will then be drawn up by the Syahbandar at that location and his proxy. After the deed has been drawn up, it will be signed in the presence of the creditor and debtor.
6. After signing by the shipowner and the creditor, the mortgage deed will be given back to Syahbandar to be installed. The Syahbandar will then issue a grosse of the ship's mortgage deed as evidence that the ship has been mortgaged.

To transfer a ship mortgage from a mortgagee to a new money mortgagee, a deed of transfer of the ship mortgage must be made by the Syahbandar. The transfer of the ship can also be done by starting with an application letter to make a transfer. As evidence of the transfer of the ship's mortgage, a grosse deed of transfer of the ship's mortgage will be issued. For ships that are no longer used as debt collateral, the ship must have the mortgage removed (roya) which is also carried out by the Syahbandar. Syahbandar plays a role in the beginning of mortgage encumbrance until the elimination of the ship.<sup>16</sup>

### IV. CONCLUSIONS

Mortgage encumbrance on ships in bank credit agreements of registered holders and registrars reviewing the completeness of the administration in less than 5 (five) days from the time the application documents have been summarized. Vessels that have entered the shipping list and other vessels in process and parts of such vessels can be granted mortgages. As the ship has been encumbered by a mortgage, the mortgagee is given a grosse of the ship's mortgage deed which has the same executorial power as the result of a court that fulfills legal certainty. The government of the transportation department needs to tighten the documents regarding the legality of the ship for its mortgage and sanctions as a result of the mortgage rules for ships are more emphasized to prevent arbitrary actions on the part of the Kesyahbandaran Office and Port Authority in managing the mortgage of ships.

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<sup>16</sup> *Ibid* . p.18.

## Legal Challenges and Uncertainties: The Use of Biometric Information Technology in Immigration Control



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**ABSTRACT:** The use of biometric information technology in immigration control is an innovation that supports the efficiency and security of the identification process of individuals at the entrance of a country. However, challenges and legal uncertainties arise as the implementation of this technology develops. This study aims to analyze the legal challenges and uncertainties that may arise in the context of applying biometric information technology in immigration control. Through a normative legal research and case study approach, we identify a number of legal issues related to privacy rights, data security, and the social impact of using biometric technology in the immigration context. These challenges involve regulatory vagueness, privacy violations, and data security risks that need to be addressed to ensure sustainable and fair implementation. This research also looks at international efforts and best practices in addressing the legal challenges that arise in relation to biometric technology in the context of immigration control. As such, this research is expected to contribute to the development of better regulations, as well as provide an in-depth look at the positive and negative impacts of using biometric technology in optimizing the immigration control process.

**KEYWORDS:** Uncertainty; Challenges; Biometric Information; Use of Technology; Immigration Surveillance.

### I. INTRODUCTION

Indonesia is a country that occupies a strategic position in international relations, both from a geographical aspect and potential resources, ranging from natural resources to human resources. From now on, the flow of people in and out of Indonesia is increasing. The globalization of the world has an impact on increasing the movement of people between countries, and this creates problems for countries because national borders are very easy to cross. Every country must have sovereignty regarding the regulation of people's traffic in and out of its territory. The regulation includes a matter of visiting or temporary stay, and each country has laws and regulations to regulate these matters which can be known as immigration provisions.<sup>1</sup>

In the context of immigration, the use of biometric technology provides significant benefits, ranging from improving border security to increasing the efficiency of the identity verification and identification process. Based on Law Number 6 of 2011 concerning Immigration. "Immigration is the matter of the traffic of people entering or leaving the territory of Indonesia and its supervision in the context of upholding state sovereignty". The use of this technology has implications not only in technical aspects but also in the fields of law, ethics and human rights.

Immigration Supervision is a series of activities aimed at providing services and law enforcement, ensuring the entry and exit of all foreign nationals into Indonesian territory, as well as monitoring foreign nationals residing in Indonesian territory.<sup>2</sup> The supervision factor is one of the essential factors because through supervision it can be known whether a foreign national's travel is in accordance with what has been stated in the immigration license, instructions or principles that have been determined, it can be known difficulties and weaknesses in work to be corrected and can also be known whether something is running efficiently or not.<sup>3</sup>

<sup>1</sup> Kennisa Monoarfa, *et. all.*, "Sanksi Atas Pelanggaran Izin Tinggal Warga negara Asing Menurut Undang-Undang NO. 6 Tahun 2011 Tentang Keimigrasian", *Lex Et Societatis*, Vol. 9 No. 1, 2021, p. 63-64.

<sup>2</sup> M. Imam Santoso, 2004, *Perspektif Imigrasi Dalam Pembangunan Ekonomi dan Ketahanan Nasional*, Universitas Indonesia UI Press, Jakarta, p. 21.

<sup>3</sup> Adrian Sutedi, 2009, *Implikasi Hukum Atas Sumber Atas Pembiayaan Daerah Dalam Kerangka Otonomi Daerah*, Sinar Grafika, Jakarta, p. 206.



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The process of travel document inspection, interview process, visa checking, travel document scanning, biometric data collection and checking on the deterrence list is a series of immigration checks carried out on Foreigners (OA) crossing into the Indonesian border.<sup>4</sup>

Biometric data collection is carried out by taking and recording fingerprints and facial photographs, and the biometric data collection is carried out for those who have never carried out biometric data collection before.<sup>5</sup> This means that the biometric data is taken when the OA first arrives at the TPI. The electronic immigration stamp is given by affixing a sticker-shaped stamp on the OA's travel document. This process is regulated in accordance with MOLHR Regulation No. 28/2018 on Immigration Stamp which replaces MOLHR Regulation No. 42/2015. This regulation explains that the electronic stamp is only given to OA who fulfill the conditions of entering Indonesian territory upon arrival. In the book *Migration and Pandemic*, border technologies for automated decision-making, biometric data, and drones are increasingly used to regulate migration and select global human mobility.<sup>6</sup>

In the general explanation section of Law No. 6 Year 2011 on Immigration, it is emphasized that against foreigners, services and supervision in the field of immigration are carried out with selective principles (selective policy), it is determined in order to protect the interests. Selective policy is a policy that requires accuracy in terms of licensing foreigners who enter Indonesian territory, namely only people who bring benefits to the country and do not disturb security and order can enter and stay in Indonesia. These foreigners must have valid travel documents and visas and are not included in the deterrence list. Thus, not all foreigners are allowed to enter Indonesian territory. This policy indirectly becomes a filter for foreigners entering Indonesian territory.<sup>7</sup>

Immigration Supervision based on Law No.9 of 1992 Articles 11 and 12 is in the form of prevention of Indonesians who will leave the country if the person is declared not allowed to leave Indonesia at the request of the prosecutor, police or requests from related parties. Immigration Supervision consists of Administrative Supervision in the form of examining, researching, evaluating, analyzing, concluding clarifying and documenting every document or letter which is the target or object of supervision. The data and information are used as input in decision making to conduct operational supervision, immigration investigation or immigration action. Other supervision is operational supervision which is a field activity in the form of investigation, security and mobilization.<sup>8</sup>

However, along with technological advancements come a number of legal issues, particularly regarding the legal uncertainty in the application of biometrics in immigration control. These issues create significant challenges for policymakers, legal practitioners, and the general public. The sustainability and availability of biometric data creates ethical debates about individual privacy. The massive storage and use of biometric data can threaten the privacy rights of citizens and migrants, raising questions about the extent to which the state has the authority to collect and store individual biometric data.

Furthermore, legal uncertainties arise in the context of a regulatory framework that is not yet fully well-defined. There is a need for a clear legal foundation to address the various issues that arise with the use of biometrics in immigration control, including arrangements related to the storage, access, and deletion of biometric data. Furthermore, the risk of technical errors and data security is an inevitable focus of attention. The use of biometric technology may pose a risk of misidentification and security threats to stored biometric data. In this context, there needs to be adequate legal protection to address the potential misuse or leakage of data that can significantly harm individuals.

In this atmosphere of uncertainty, it is necessary to conduct an in-depth study to develop a balanced legal framework between the use of biometric technology in immigration control and the protection of individual rights and privacy. Concrete steps need to be taken so that clear and firm regulations can protect the interests of the public while ensuring the effectiveness of immigration control in the face of today's global challenges.

## II. RESEARCH METHOD

This research is a normative juridical legal research. What is meant by juridical research is to look at legal aspects based on laws and regulations, while normative research is a research in the field of law to find legal rules, as well as legal doctrines to answer existing legal issues. Normative juridical legal research that focuses on the review or study of positive law. Normative juridical

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<sup>4</sup> Menteri Hukum dan HAM RI, *Peraturan Menteri Hukum Dan HAM RI No. 44 Tahun 2015 Tentang Tata Cara Pemeriksaan Masuk Dan Keluar Wilayah Indonesia*, 2015, [www.peraturan.go.id](http://www.peraturan.go.id).

<sup>5</sup> Menteri Hukum dan HAM RI, *Peraturan Menteri Hukum Dan HAM RI No. 44 Tahun 2015 Tentang Tata Cara Pemeriksaan Masuk Dan Keluar Wilayah Indonesia*.

<sup>6</sup> A. Triandafyllidou, 2022, *Migration and Pandemics: Spaces of Solidarity and Spaces of Exception*, IMISCOE Research Series, p.23.

<sup>7</sup> *Ibid.*, p. 50.

<sup>8</sup> Wahyudin Rukun, 2003, *telaah masalah-masalah keimigrasian, kumpulan artikelkeimigrasian*, PT. Adi Kencana, Jakarta, p. 5.



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research is legal research that places the law as a building system of norms. The system of norms in question is about principles, norms, rules from laws and regulations, court decisions, and doctrines or teachings.

### III. RESULT AND DISCUSSION

#### Challenges and Legal Uncertainty in the Use of Biometric Information Technology in Immigration Surveillance

The word immigration is a translation of Latin migration which means the movement of people from one place to another or from one country to another. There is also the term emigration which has a different meaning, namely the movement of people from one country's territory out to another country's territory. On the other hand, the term immigration in Latin means the movement of people from one country to enter another country.<sup>9</sup> Based on Law Number 6 Year 2011 on Immigration, Article 1 paragraph 1 states: Immigration is the matter of people entering or leaving the territory of Indonesia and its supervision in order to maintain the sovereignty of the State ".

In this era of globalization, immigration control has become a crucial aspect in maintaining the security and integrity of a country. In an effort to improve its effectiveness, many countries are adopting biometric technology as the main identification tool. Biometrics, which involves the use of unique physical data such as fingerprints, face, and iris, has opened up new opportunities in monitoring and controlling population movements at borders.<sup>10</sup>

According to Roethenbaugh and Mansfield, biometrics is an automated method of recognizing or verifying a person's identity based on a physical or behavioral characteristic. Individual behavioral characteristics such as fingerprints, iris, hand geometry and retina are special physical characteristics of each individual or can also be called biometrics. Biometrics (derived from the Greek bios which means life and metron which means to measure). So, it can be concluded that biometrics is the measurement and calculation of the body related to human characteristics.

Biometric identifiers are distinctive and measurable characteristics used to mark and describe individuals. Biometric identifiers are often categorized as physiological characteristics related to body shape. Examples include, but are not limited to fingerprints, palm veins, facial recognition, DNA (deoxyribonucleic acid), palm prints, hand geometry, iris or retinal recognition and smell/aroma. Behavioral characteristics relate to a person's behavioral patterns, including but not limited to typing rhythm, gait, keystrokes, signature, behavioral profile and voice.<sup>11</sup> According to Lebovic, Galton's work "led to the application of mathematical models for fingerprints, phrenology, and facial characteristics, as part of absolute identification and key to including and excluding populations.<sup>12</sup>

The utilization of biometric technologies, such as fingerprinting, facial recognition, or iris scanning, provides advantages in the identification of individuals with a high degree of accuracy. However, behind the sophistication of this technology comes a number of legal uncertainties that need to be addressed. The use of biometrics in the context of immigration control presents complex challenges related to privacy, human rights, and other legal aspects.

The use of biometric information technology is useful for surveillance in immigration functions. Supervision in the immigration function is the whole process of activities to control or supervise whether the process of carrying out tasks is in accordance with predetermined rules. Initially, the implementation of supervision was only carried out against foreigners, but given the development and dynamics of society that are increasing, it is carried out thoroughly, including against Indonesian citizens, especially in terms of misuse and falsification of travel documents.<sup>13</sup>

Article 68 of Law Number 6 Year 2011 on Immigration has regulated immigration control of foreigners conducted at the time of visa application, entry or exit and the granting of residence permits:

- a. Collection, processing, and presentation of data and information;
- b. Preparation of a list of names of Indonesian citizens subject to prevention from leaving the territory of Indonesia;
- c. Monitoring the presence and activities of foreigners in the territory of Indonesia;
- d. Taking photos and fingerprints;
- e. Other activities that can be legally accounted for.

Supervision as one of the functions of management which is a process of activities to ensure and guarantee that goals and objectives and tasks have been carried out properly in accordance with the plans and conditions that have been set. So that there is a close relationship between planning and supervision.

<sup>9</sup> Herlina Wijayanti, 2011, *Hukum Kewarganegaraan dan Keimigrasian*, Bayumedia Publishing, Malang, p.129.

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<sup>12</sup> Nitzan, Ellenbogen, 2015, *Biometrics or the Power of the Radical Center*, University of Chicago, p. 841–868.

<sup>13</sup> Bhakti Yudha, 2003, *Hukum Internasional*, Sinar Grafika, Bandung, p.3.

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To carry out tasks and activities properly, the apparatus that carries out the supervisory function must understand the meaning of the purpose of conducting supervision first. This is important, because if the apparatus implementing the supervisory function does not understand the meaning and purpose of supervision, the final result of the supervision carried out is not in accordance with the expectations and desired goals. It could be that supervision is carried out carelessly and only as a formality. So in essence, so that the achievement of the desired goals does not deviate, then the implementation of a policy or activity needs to be supervised.

In the implementation of supervision is an important element to maintain the smooth running of organizational work which consists of various components, so that it can run in accordance with what is expected. Basically, good supervision is effective supervision, which means that if there is a deviation, it must be possible to take corrective action immediately, so that the implementation of further activities can run smoothly.

The use of biometric information technology in immigration control, while bringing great benefits, is also faced with a number of challenges that need to be overcome to ensure its sustainability and effectiveness. Below are some of the critical challenges associated with the use of biometric information technology in the context of immigration control:

### 1. Privacy and Human Rights

The collection and storage of biometric data often raises concerns regarding individuals' privacy rights. This challenge includes how to ensure that biometric information is not misused and remains compliant with human rights norms.

### 2. Data Security

With large amounts of biometric data being collected, data security challenges are significant. The risk of biometric data leakage or misuse is a threat that must be addressed with robust security measures.

### 3. Accuracy and Misidentification

Biometric technology can face challenges in terms of accuracy, especially when faced with variations in environmental conditions or changes in an individual's physical characteristics. Misidentification can have serious consequences, including wrongful arrest or deportation.

### 4. System Integration and Standardization

Integration challenges arise when various biometric systems cannot communicate or connect efficiently. Additionally, disagreements in biometric standards can hinder international collaboration in data exchange.

### 5. Public Acceptance and Stigma

The public often responds to biometric technology with distrust or concern, especially when it comes to immigration control. This challenge includes how to gain public support and overcome the stigma associated with using this technology.

### 6. Implementation and Maintenance Costs:

The implementation of biometric technology requires significant investment, both in hardware and software procurement, as well as in personnel training. System maintenance and updates also incur additional costs.

### 7. Misuse by Certain Parties

There is a risk of misuse of biometric technology by irresponsible parties, such as identity theft or falsification of biometric data. This challenge requires efforts in building a security system that is resistant to various threats.

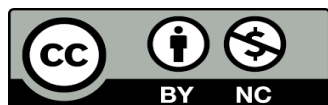
Responding to these challenges requires cross-sector collaboration, ethical thinking, and ongoing efforts to improve the technology and regulatory systems that support the application of biometric information technology in immigration control. The successful application of biometric technology in immigration control depends not only on its ability to identify individuals, but also on the compatibility of the practice with the applicable legal framework. Legal uncertainties arise in many aspects, including the regulation of data privacy, the protection of individual rights, and the management of biometric data in general.

One of the main challenges is the uncertainty in the regulatory framework. Many countries do not have clear and comprehensive regulations governing the use of biometric information technology in immigration control. The existence of poorly defined regulations creates legal uncertainty, leaving room for varying interpretations and potential abuse. Furthermore, the collection and use of biometric data in immigration control often raises questions related to individual privacy rights and personal data protection. The discussion needs to highlight the legal uncertainty regarding the extent to which states can violate individuals' privacy rights in the interest of national security.

In order to address this legal uncertainty, cooperation between the government, legal experts, and community groups needs to be enhanced. The development of clear regulations that can be applied fairly and ethically is essential to balance security and individual rights in biometric technology-based immigration surveillance.

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## The Influence of Product Quality, Price Perception and Product Variety on Consumer Repurchase Intentions with Consumer Satisfaction as a Mediating Variable (Study on Solid Surface Performnrite Products)



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**ABSTRACT:** The progress of the Indonesian interior world is growing rapidly following current trends. Consumers tend to look for furniture with a simple, clean and functional style. One material that is often used for furniture is solid surface material. Solid surface can be combined with wood, iron, rattan and other materials. Considering the increasing number of solid surface manufacturers in Indonesia, competition in the solid surface industry is becoming tight. It requires strong repurchase interest from consumers to survive in the solid surface industry. This research was conducted to analyze the factors that influence solid surface consumers repurchase interest using PLS-SEM. The population of this research is consumers of solid surface performnrite. The results of this research are that product quality, price perception, product variety have a significant effect on consumer satisfaction. Product quality, price perception, product variety have a significant effect on repurchase intention. Consumer satisfaction partially mediates the relationship between product quality, price perception, product variety and repurchase intention.

**KEYWORDS:** Repurchase intention, consumer satisfaction, product quality, price perception, product variety, solid surface

### I. INTRODUCTION

The development of the furniture industry in Indonesia has experienced significant growth in recent years. Modern and minimalist furniture designs continue to be a trend in Indonesia. Consumers tend to look for furniture with a simple, clean and functional style. In addition, the demand for personalized furniture and custom designs is increasing in Indonesia. Consumers want to have furniture that is unique and suits their tastes and needs. One material that is often used for furniture is solid surface material. Solid surface can be combined with wood, iron, rattan and other materials.

The use of solid surface material is usually used for table tops on kitchen tables, sink tables, reception tables, restaurant tables and other functions besides table tops. Unlike real granite, solid surface material is lighter in weight and non-porous so its hygiene is maintained. This makes this material much sought after and used by designers and consumers to complete their project needs. Currently, solid surface producing companies are easily found, especially in the Jakarta, Tangerang, Bekasi areas. With increasingly tight competition to get consumers and retain consumers, Solbrand Performnrite prioritizes its advantages in terms of price, product and service.

Based on solid surface sales data, the Performnrite brand still experiences fluctuations in the number of purchases every month. The problem faced by the company is that it has not achieved its sales target as expected by the company. Based on discussions with the marketing team, the current challenge for the company is that there are many new competitors for solid surface manufacturers, especially the home industry because they come at cheaper prices. Another thing that is a challenge is the existence of substitute materials such as Quadra, Terazzo which are competitors to solid surface materials with the advantages and disadvantages of each material.

Considering the increasing number of solid surface manufacturers in Indonesia, competition in the solid surface industry is becoming tight. It requires strong repurchase interest from consumers to survive in the solid surface industry. (Davy, 2019) conducted research on consumer repurchase interest with the results that service quality, product quality, product design had a positive and significant effect on repurchase interest as well. Another research conducted by (Isfiandi & Amin, 2019), the factors that influence repurchase decisions are product variation and price variables, while the customer experience variable does not

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have a significant effect on repurchase decisions. According to (Qureshi et al., 2020) price, product quality, brand loyalty can influence customer buying interest. According to research (Akbar & Nurcholis, 2020) location and product quality have a positive and significant effect on consumer repurchase interest, while the price variable has a negative and significant effect on consumer purchase interest.

Based on research conducted (Fuadi et al., 2021), higher customer satisfaction can increase interest in repeat purchases. This is in line with research conducted by (Napitupulu & Siahaya, 2022) showing that satisfaction felt by consumers gives rise to a positive response in the form of repeat purchases. According to (Davy, 2019) customer satisfaction mediates service quality, product quality and product design on consumer repurchase interest.

A pre-survey was conducted on 30 consumers to strengthen the variables to be used in the research. The presurvey results show the factors that are thought to be dominant in influencing consumers repurchase interest in Performnrite products. Based on eight factors, the most dominant factors are price perception, product quality, and product variety. Based on previous research and pre surveys that have been carried out, in this research the author will test or examine the factors that influence consumers repurchase interest, with consumer satisfaction as a mediating variable. The factors chosen by consumers are based on phenomena, and a combination of several variables in previous research and pre surveys that have been carried out. Based on the background above, the author discusses further in the form of research, namely the influence of product quality, service quality, price and product variety on repurchase interest with consumer satisfaction as a mediating variable (study on solid surface performance).

## **II. LITERATURE REVIEW**

### **A. Consumer Behavior**

Consumer behavior is defined as the behavior demonstrated by consumers in searching for, purchasing, using, evaluating and disposing of products and services that they hope will satisfy their needs (Schiffman & Kanuk, 2000). Consumer behavior is a process that is closely related to the purchasing process, at which time consumers carry out activities such as searching, researching and evaluating products. Consumer behavior is the basis for consumers to make purchasing decisions (Indrasari, 2019).

### **B. Product Quality**

According to Kotler & Armstrong (2018), a product is anything that can be offered to the market for attention, acquisition, use, or consumption that can satisfy a want or need. Product quality is a totality of characteristics that a product or service has which can indicate a measure to see how high the level of consumer trust is in the product or service they use and how long that trust can last (Miguna, 2020). Product quality is the main element that makes customers interested in buying and as a result, companies gain sales and profits (Alzoubi et al., 2022). There are several dimensions of product quality according to Kotler (2016), including:

1. **Form:** Where the product has a shape that is visible to the five senses and has an attractive texture. The form of a product can include the size, shape, or physical structure of the product
2. **Performance:** Performance discusses matters that include or are related to the basic operating characteristics or functional aspects of a product, such as ease of use of the product. The performance of several products is usually based on customer desires which are basically general in nature.
3. **Customization:** Marketers can differentiate products by adapting them to individual desires.
4. **Durability:** The reliability of a product indicates that the level of quality is very meaningful for consumers to own the product. The smaller the possibility of damage to a product, the higher the product's reliability.
5. **Aesthetics:** The product's appeal to the five senses can be seen from its physical form, color, model or design, taste, aroma and so on. So consumers will be interested in a product when they see the initial appearance.
6. **Perceived quality:** This is the consumer's perception of the quality of the product or the superiority of the product.

### **C. Price Perception**

In general, perception is defined as a direct response or process where someone knows several things through sensing (Asnori, 2020). Price is the amount of money exchanged for a product or service (Kotler, 2018). Price perception includes a form of consumer assessment of the goods or services being sold and a socialized emotional form regarding whether the price corresponds to the quality of the goods or services (Muhtarom, 2022). Price perception is a consumer's opinion or observation regarding information about how much money will be used to obtain a product or service that is desired and appropriate, to meet their life needs. According to Kotler and Armstrong (2016), there are four measures that characterize price, namely:

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1. Affordability.
2. Prices according to ability or price competitiveness.
3. Price match with product quality.
4. Matching price with benefits.

### **D. Product Variations**

Product variations can be defined as products that have different designs or types and are produced by a factory, product differences include differences in shape and size (Groover, 2010). Product variety is very important for buyers because they can compare, contrast, and also choose between several goods to meet their personal needs. The greater the number and type of products sold in a place, the more consumers will feel satisfied and purchase that product and will not need to buy other products (Melinia, 2023). (Kotler, 2018) explains that product variations include:

1. Price variation, the amount of money charged for a product or service
2. Variations in product completeness disrupt the availability of a product.
3. Variations in product size range from the smallest to the largest model, shape, physical structure.

### **E. Consumer Satisfaction**

According to Kotler (2014) consumer satisfaction is a feeling of pleasure or disappointment that arises after comparing the performance (results) of the product in question against the expected performance or results. The definition of consumer satisfaction according to (Tjiptono, 2014) states that consumer satisfaction is an emotional assessment of consumers after consumers use a product where the expectations and needs of consumers who use it are met. Based on the opinions of the experts above, it can be concluded that customer satisfaction is the response from consumers to the products or services received that meet consumer expectations. In other words, consumer satisfaction can occur when consumer expectations can be realized by the company.

According to Tjiptono (2014), there are three important aspects that need to be studied within the framework of measuring consumer satisfaction, namely:

1. General or overall satisfaction
2. Confirmation of expectations, namely the level of conformity between performance and expectations
3. Comparison with an ideal situation (comparison to ideal), namely product performance compared to the ideal product according to consumer perception

### **F. Repurchase Intention**

Repurchase interest is purchase interest that is based on purchasing experiences that have been carried out in the past. High repurchase interest reflects a high level of satisfaction from consumers (Ali Hasan, 2018). Repurchase interest is basically a person's behavior caused by past behavior (consumption experience) which directly influences consumption interest in the future (Yunisya, 2017). A high repurchase rate reflects a high level of consumer satisfaction and trust. Consumers who are satisfied and decide to become customers will instinctively commit to recommending the product positively to potential consumers of other products.

According to Ferdinand (2014) repurchase interest has the following four indicators:

1. Transactional interest, namely discussing consumers' willingness to purchase a product.
2. Referential interest, which discusses consumers' willingness to recommend a product to other people.
3. Preferential interest, which discusses consumer behavior that makes a product their main choice.
4. Exploratory interest, namely discussing consumers' desires to find information about a product.

## **III. METHOD AND MATERIAL**

This research aims to test whether the identified variables have a significant relationship with repurchase intention, as well as test whether the consumer satisfaction variable can mediate the relationship between these two variables. This research is research with a quantitative approach with a descriptive research type.

The population in this research are all solid surface performnrite consumers who have repurchased solid surface performnrite products. The sample criteria in this research are consumers of solid surface performnrite products, have purchased at least once, and have used solid surface performnrite products. To determine the sample to be used, the researcher used a simple random sampling method, using the Slovin formula. The total population in this study was 346 people, so the number of respondents used was 186 respondents.



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The data collection technique used is by distributing questionnaires or lists of questions or questionnaires. The research used a closed questionnaire, where answers to each statement item were provided using five alternative answers based on a Likert scale. In this research, the author used an online questionnaire using Google Form which was distributed to respondents via Whatsapp and Email. Data processing uses smart PLS (Partial Least Square) software. The PLS measurement model consists of a measurement model (outer model) and a structural model (inner model). PLS aims to test the predictive relationship between constructs by seeing whether there is an influence or relationship between these constructs (Ghozali, 2015).

### IV. RESULT AND DISCUSION

The results of the characteristics of respondents show that based on gender it is dominated by female respondents (55.91%), based on age it is dominated by respondents who are in the age range of 25 to 35 years as many as 97 respondents (52.15%), based on education level it is dominated by respondents with bachelor's degrees. (76.34%), based on occupation most of the respondents are entrepreneurs (48.92%), based on monthly income most of the respondents have an income of 15-20 million per month (44.09%).

**Table 1. Reliability and Validity**

Variable	Indicator	Factor Loading	AVE	Composite Reliability	Cronbach's Alpha	Information
Product quality	X1.1	0,781	0,773	0,978	0,975	Valid, Reliable
	X1.2	0,901				
	X1.3	0,905				
	X1.4	0,921				
	X1.5	0,874				
	X1.7	0,883				
	X1.9	0,854				
	X1.10	0,858				
	X1.12	0,858				
	X1.13	0,919				
	X1.14	0,900				
	X1.15	0,892				
X1.16	0,876					
Price Perception	X2.1	0,894	0,761	0,970	0,965	Valid, Reliable
	X2.2	0,779				
	X2.3	0,866				
	X2.4	0,881				
	X2.5	0,890				
	X2.6	0,877				
	X2.7	0,889				
	X2.8	0,904				
	X2.9	0,889				
	X2.10	0,851				
Product Variations	X3.1	0,844	0,671	0,935	0,919	Valid, Reliable
	X3.2	0,746				
	X3.3	0,820				
	X3.4	0,783				
	X3.5	0,856				
	X3.6	0,843				
	X3.7	0,837				
Consumer Satisfaction	Z1.1	0,918	0,838	0,973	0,968	Valid, Reliable
	Z1.2	0,931				
	Z1.3	0,928				
	Z1.4	0,906				
	Z1.5	0,888				
	Z1.6	0,907				
	Z1.7	0,931				

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Repurchase Interest	Y1.1	0,853	0,757	0,966	0,960	Valid, Reliable
	Y1.2	0,892				
	Y1.3	0,918				
	Y1.4	0,864				
	Y1.5	0,908				
	Y1.6	0,867				
	Y1.7	0,869				
	Y1.8	0,814				
	Y1.9	0,841				

From the results of the tests carried out, it was found that the loading factor results of all indicators on each variable had met validity, namely above 0.7. The AVE results obtained values above 0.5 for all constructs contained in the research model, which means they have met the requirements. The composite reliability value shows high or reliable results because for each variable it shows a number above 0.8. The research data is in accordance with the Cronbach's Alpha value which is more than 0.6, so it is declared valid.

**Table 2. Hypothesis test**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
X1 -> Y	0.203	0.202	0.07	2.887	0.004
X2 -> Y	-0.119	-0.117	0.06	1.98	0.048
X3 -> Y	0.333	0.334	0.06	5.565	0
X1 -> Z	0.281	0.259	0.124	2.263	0.024
X2 -> Z	-0.452	-0.432	0.103	4.374	0
X3 -> Z	1.048	1.049	0.095	11.054	0
Z -> Y	0.594	0.592	0.033	18.143	0
X1 -> Z -> Y	0.167	0.153	0.074	2.271	0.024
X2 -> Z -> Y	-0.268	-0.256	0.064	4.186	0
X3 -> Z -> Y	0.622	0.621	0.07	8.835	0

Based on these results, the following hypothesis results can be concluded:

1. Product quality has a positive and significant effect on consumer satisfaction. It has a P value of 0.004, where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between product quality and consumer satisfaction. The value of 0.203 indicates a positive value so it can be said that product quality has a significant positive relationship with consumer satisfaction. This is in line with research conducted by Devy (2020), Fuadi (2021) that product quality has a positive and significant effect on consumer satisfaction. So the first hypothesis is accepted.
2. Price perception has a negative and significant effect on consumer satisfaction. It has a P value of 0.024, where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between Price Perception and consumer satisfaction. The value -0.119 indicates a negative value so it can be said that Price Perception has a significant negative relationship with consumer satisfaction. This is in line with research conducted by (Marpaung & Mekaniwati, 2020) that price perceptions have a negative and significant effect on consumer satisfaction. In line with research results (Akbar & Nurcholis, 2020) price perceptions have a significant effect on consumer satisfaction. So the second hypothesis is accepted.
3. Product variety has a positive and significant effect on consumer satisfaction. It has a P value of 0.048, where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between product variety and consumer satisfaction. The value of 0.333 indicates a positive value so it can be said that product variety has a significant positive relationship with consumer satisfaction. This is in line with research conducted by (Dara, 2023) and (Sapitri & Yusnidar, 2023) that there is a direct influence of product variations on consumer satisfaction. The diversity of products and

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- more alternative choices offered by kirana furniture companies will increase consumer satisfaction. So the third hypothesis is accepted.
4. Product quality has a positive and significant effect on repurchase interest. It has a P value of 0.000, where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between product quality and repurchase intention. The value of 0.281 indicates a positive value so it can be said that product quality has a significant positive relationship with repurchase interest. This is in line with research (Fuadi et al., 2021), (Davy, 2020) that higher product quality can increase customer repurchase interest. So the fourth hypothesis is accepted.
  5. Price Perception has a negative and significant effect on Repurchase Intention. It has a P value of 0.000. This value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between Price Perception and Repurchase Intention. The value -0.452 indicates a negative value so it can be said that Price Perception has a significant negative relationship with repurchase intention. This is in line with research conducted by (Raharjo, 2020), (Firdausi, 2021) that price has a significant effect on repurchase intention. So the fifth hypothesis is accepted.
  6. Product Variation has a positive and significant effect on repurchase interest. It has a P value of 0.000, where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between Product Variation and repurchase interest. The value of 1.048 indicates a positive value so it can be said that product variety has a significant positive relationship with repurchase interest. This is in line with research conducted by (Sarifudin, 2021) (Isfiandi & Amin, 2019) that product variations have a positive and significant effect on repurchase intention. So the sixth hypothesis is accepted.
  7. Consumer satisfaction has a positive and significant effect on repurchase interest. It has a P value of 0.000. This value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship. The value 0.594 indicates a positive value. Consumer satisfaction has a positive and significant effect on repurchase intention. This is in line with research conducted by (Fuadi et al., 2021) (Sarifudin, 2021) which shows that consumer satisfaction influences repurchase decisions. So the seventh hypothesis is accepted.
  8. Product quality has a positive and significant effect on repurchase intention through consumer satisfaction which has a P value of 0.024. Where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship between product quality and repurchase interest through consumer satisfaction. The value of 0.167 indicates a positive value so it can be said that product quality has a significant positive relationship with repurchase interest through consumer satisfaction. This is in line with research conducted by (Fuadi et al., 2021), (Davy, 2020) that empirically customer satisfaction plays a partial role (partial mediation) in the relationship between product quality and repurchase intention. So the eighth hypothesis is accepted.
  9. Price perception has a negative and significant effect on repurchase intention through consumer satisfaction. It has a P value of 0.000. Where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship. Price perception has a negative and significant effect on repurchase intention through consumer satisfaction. The value -0.268 indicates a negative value so it can be said that product quality has a significant negative relationship. This is in line with research conducted by (Prayoni & Respati, 2020) that consumer satisfaction is able to significantly mediate the influence of price perceptions on purchasing decisions. So the eighth hypothesis is accepted.
  10. Product variety has a positive and significant effect on repurchase interest through consumer satisfaction. It has a P value of 0.000. Where this value is significant because it is smaller than 0.05, so it can be said that there is a significant relationship. Product variety has a positive and significant effect on repurchase interest through consumer satisfaction. The value 0.622 indicates a positive value so it can be said that Product Variation has a significant positive relationship. This is in line with research conducted by (Anjani, 2021) that product variations have a significant effect on repurchase intention which is mediated by customer satisfaction. So the eighth hypothesis is accepted.

**Table 3. Size Mediation Effects**

	Indirect Effect (a x b)	Total Effect ((a x b) + c)	VAF	Information
X1	0.166979	0.37	45%	Partial Mediation
X2	-0.26824	-0.388	69%	Partial Mediation
X3	0.622102	0.955	65%	Partial Mediation

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Testing the Mediation Size Effect using Variance Accounted For (VAF). VAF shows how much the mediating variable is able to absorb the previously significant indirect effect from the model without mediation. If the VAF value is above 80% then the mediator plays a full role (full mediation). If the VAF value is between 20% – 80% then it can be categorized as partial mediation. However, if the VAF is less than 20% it can be concluded that there is no mediation effect (Hair et al., 2013). Based on the test results, it shows that the consumer satisfaction variable partially mediates.

### **V. CONCLUSIONS**

Based on the results of the study, it can be concluded:

1. Product quality perceived by consumers can increase consumer satisfaction with the use of the product. Good product quality tends to meet or even exceed consumer expectations. This creates a sense of satisfaction and consumer confidence in the products being sold. Good quality solid surface products create a more positive experience, reduce dissatisfaction, and help maintain strong relationships between manufacturers and consumers. Conversely, low-quality products can lead to dissatisfaction, complaints and loss of customers. Therefore, product quality is very important to maintain and improve in order to meet consumer expectations.
2. Perceptions of solid surface product prices reflect the way customers assess product prices in relation to the value or benefits they receive. When consumers have the perception that the price is too high or not commensurate with the value given to the price of a product, this will significantly reduce consumer satisfaction with the use of the product.
3. Consumers have different preferences, and product variety can enable consumers to choose products that suit their needs and tastes. With so many choices in solid surface types, colors, textures and designs, consumers have more opportunities to find products that suit their tastes and needs. When consumers can easily find products that suit their needs and wants, they tend to feel more satisfied.
4. Product quality: Product quality perceived by consumers can increase consumers' repurchase interest in using the product. Good product quality can build consumer trust in the product brand. Consumers who have positive experiences with solid surface products from a brand tend to prefer that brand when purchasing similar products in the future. Consumers tend to trust brands that are proven to provide quality products more than brands that are inconsistent in terms of quality. Products that are of good quality tend to have a lower risk of damage or failure. Consumers feel more comfortable repurchasing products from brands that have proven their quality.
5. Price perceptions felt by consumers can increase consumers' repurchase interest in using the product. Price perception refers to the way consumers view and evaluate product prices. If consumers feel that a product's price is competitive or even lower compared to similar products from competitors, they are more likely to repurchase. The perception of high or expensive prices for solid surface performnrite products can have a significant negative impact on repurchase interest in a product or service.
6. Product variations can increase consumer satisfaction with product use. With a greater variety of products, consumers have more options to find the products that best suit their needs, tastes and preferences. Solid surface products with a variety of choices in terms of colors, patterns and textures allow consumers to keep up with the latest trends. Consumers may experience boredom if they keep buying the same products. The variety of products offered by a brand can overcome this problem by providing variety in the consumer shopping experience, making consumers more inclined to continue buying products from that brand.
7. Consumer satisfaction can increase interest in repurchasing the product. Consumers who are satisfied with their experience in purchasing and using products tend to become loyal customers. Consumer satisfaction is influenced by the overall customer experience, including product quality, price, product variety and response to problems or complaints. Satisfied consumers will give positive recommendations about products or services to their friends, family or business partners. Consumers have a strong repurchase interest because they feel that the brand meets their expectations.
8. Consumer satisfaction partially mediates the relationship between product quality and consumer repurchase interest. Consumers who are satisfied with product quality have a higher interest in buying the same product again in the future because they feel the product has provided good value. High quality products can provide a satisfying experience to consumers. When consumers are satisfied with the product they purchased, they are more likely to want to purchase the same product again because they have confidence that the product will meet their expectations.
9. Consumer satisfaction partially mediates the relationship between price perception and consumer repurchase intention. When customers feel that the price they pay is commensurate with the value they receive, consumers will feel satisfied with their purchasing experience. This makes consumers have a higher interest in repurchasing the same product.

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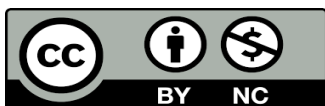
10. Consumer satisfaction partially mediates the relationship between product variations and consumer repurchase interest. Product Variety gives consumers more opportunities to find products that suit their needs and preferences. This can increase consumer satisfaction if consumers feel satisfied with the products they buy, especially if consumers believe that the brand consistently provides the quality products they need. Satisfied consumers tend to be more loyal to brands, and they are more likely to repurchase products from the same brand.

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## Analysis of Determinants of Webrooming Intention



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**ABSTRACT:** Along with the development of the internet, it has now developed and is used in various fields, including the online business sector. This shows that consumers can access more than one channel both offline and online in the shopping process, this behavior can lead to Webrooming Intention behavior. The purpose of this research is to see and analyze the influence of Perceived Usefulness of Online Search, Perceived Ease of Online Search, and Sales Staff Assistance on Webrooming Intention. The number of respondents in this study was 226 people. The data analysis method in this research uses Smart PLS. The results of the research show that Perceived Usefulness of Online Search has a positive and significant effect on Webrooming Intention, Perceived Ease of Online Search has a positive and significant effect on Webrooming Intention and Sales Staff Assistance has a positive and significant effect on Webrooming Intention.

**KEYWORDS:** Webrooming Intention, Perceived Usefulness of Online Search, Perceived Ease of Online Search, Sales Staff Assistance

### I. INTRODUCTION

Technological changes continue to develop, including the development of the internet network in Indonesia. The use of the internet is then utilized in various fields, including the online business sector, namely the marketplace (Jabat et al., 2022). This shows that retail sellers are expanding access to their stores through online stores. Sellers integrate digital channels and physical channels which allows consumers to buy products through offline and online channels or is referred to as omnichannel retail (Shao, 2021).

Buyer behavior to use more than one channel can lead to webrooming intention behavior. Webrooming intention behavior can occur for several reasons, one of which is consumers' feelings of impatience in waiting for delivery times and feelings of fear of getting goods that do not match what they see online. This makes consumers feel less comfortable using online platforms for shopping because they are considered less safe (Flavián et al., 2019).

In line with research conducted by Populix where as many as 37% of consumers prefer to go to shops and make purchases directly because, 78% feel they can see the product directly, 68% feel they can immediately take home the goods they have purchased, 61% minimize damaged goods and lost items, 57% can try items before buying them, and 42% provide a form of quality time for themselves or their family (Suharto, 2010).

Based on the above phenomenon, there are several inconsistent studies (inconsistent findings), namely: Arora & Sahney (2019) research proves that Perceived Usefulness of Online Search has a positive effect on Webrooming Intention, while research by Aw et al. (2021) shows that Perceived Usefulness of Online Search has no effect on Webrooming Intention. Another research by Arora & Sahney (2019) Perceived Ease of Online Search has a positive effect on Webrooming Intention, while research by Shankar & Jain (2021) Perceived Ease of Online Search has no effect on Webrooming Intention. Research by Kleinlercher et al. (2020) Sales Staff Assistance has a positive effect on Webrooming Intention, while Aw's research (2019) Sales Staff Assistance has no effect on Webrooming Intention.

With these inconsistent findings, researchers are interested in conducting further research on webrooming intention by testing the relationship between the variables Perceived Usefulness of Online Search (PUOS), Perceived Ease of Online Search (PEOS) and Sales Staff Assistance on Webrooming Intention.

## **Analysis of Determinants of Webrooming Intention**

### **II. LITERATURE REVIEW**

#### **A. Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM) is a theory first developed by Fred Davis in 1989 regarding the use of information technology systems which is considered to be very influential and explains individuals' use of information systems. TAM is used to explain the factors that influence user acceptance of new technology (Yuniar Firdaus et al., 2022). The TAM concept was formed based on the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975). In TAM, user acceptance of an information system is determined by two main factors, namely perceived usefulness and perceived ease of use (Iqbal, 2018).

According to Famawati (2015), perceived usefulness is that users believe that using new technology will make it easier to use and will not encounter difficulties and hard work, while perceived ease of use is that users believe that using new information technology will provides benefits to users and will improve their performance from various aspects. There are several advantages of TAM according to Pratiwi et al. (2020) including:

1. TAM is an alternative answer when a system cannot answer user needs, so that users lose interest in the information system being created.
2. TAM exists with the aim of becoming a strong theoretical basis.
3. TAM has passed many research tests with the conclusion that TAM is included in the positive impact category.
4. TAM is a model that has a simple but valid appearance.

#### **B. Smart Shopping Feelings**

Smart shopping is a concept that describes the experience felt by consumers in the process of minimizing costs, time and energy expenditure and maximizing the results that can be obtained from the shopping process (Flavián et al., 2020). Smart shopping appears when consumers feel they want to get the right outcome when shopping so they choose to do webrooming to get the right shopping results by visiting offline stores. That way, consumers will feel they have more control over the goods they buy (Flavián et al., 2019).

According to Hartini & Hidayati (2021), when consumers engage in webrooming behavior when shopping, the feeling of smart shopping will increase. Consumers will look for information about the product they want to buy, such as looking for information about sales location, price, product specifications, etc. With the information they have obtained, consumers feel they spend less energy and are able to get cheaper prices.

#### **C. Perceived Usefulness of Online Search (PUOS)**

Perceived usefulness of online search is that someone believes that using a system can improve their performance (Fradiani et al., 2018). The perceived usefulness of online search can be increased when a system can provide benefits and facilitate online activities carried out by its users. When a system is equipped with fast access, providing user needs, it will create a positive user attitude towards the system (Syaharani & Yasa, 2022). In line with Santos & Gonçalves (2019) who say that the availability of information online is useful for consumers to avoid uncertainty.

The indicators of perceived usefulness of online search used in this research were adopted from previous research conducted by Shankar & Jain (2021), including:

1. Reviews provided by consumers online are very useful.
2. Reviews provided by consumers online make shopping easier.
3. Reviews provided by consumers online make the shopping process smart.

#### **D. Perceived Ease of Online Search (PEOS)**

Perceived ease of online search is described by Syaharani & Yasa (2022) as the perception of ease felt by users of a system, and if a system is easy to use then an individual will use the system. In line with Iriani & Andjarwati (2020) said that frequency of use and interaction with the system also shows ease of use. A system that is frequently used indicates that the system is easy to recognize, easy to operate and easy to use.

Another opinion was expressed by Dhir et al. (2020) who stated that the ease of using online search allows consumers to get the best possible information so that consumers get the opportunity to compare several products so they can choose the best product.

The perceived ease of online search indicators used in this research were adopted from previous research conducted by Shankar & Jain (2021), including:

1. It is easier to find information about a product online than offline.
2. It is easy to obtain product information online.
3. It is very easy to use online channels to obtain information about a product.

## Analysis of Determinants of Webrooming Intention

### E. Sales Staff Assistance

According to Aw (2019) sales staff assistance is someone who will help consumers in the shopping process. In line with this, Oktavia (2019) said that sales staff assistance plays a role in the purchasing process carried out by consumers from the beginning to after-sales, and the abilities that sales staff assistance must have include knowledge of the product, company conditions, competitors and ability in provide solutions when there are problems faced by consumers. Another opinion expressed by Kang (2018) is that sales staff assistance is someone who will provide feedback and information needed by consumers directly. The sales staff assistance indicators used in this research were adopted from previous research conducted by Shankar & Jain (2021), including:

1. Direct contact with other people makes the shopping process more enjoyable.
2. Feel happy interacting with sales staff when shopping.
3. The attention or assistance provided by staff is very important.
4. Having to use a machine when you can interact directly with staff is annoying.

### F. Webrooming Intention

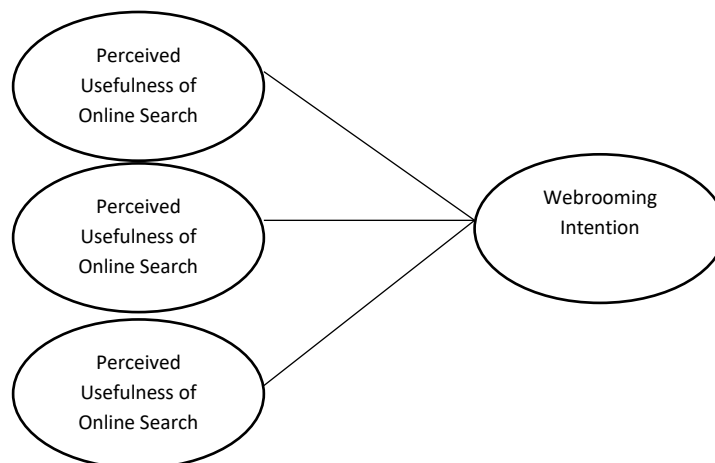
According to Arora & Sahney (2018), webrooming intention is the consumer's desire to search online and end by making a purchase offline. In line with Mas'ud & Azizurohman (2021) who say that webrooming intention is a shopping method carried out by a consumer who buys a product directly by visiting a physical store by first looking at the specifications of the product to be purchased via the internet.

The webrooming intention indicators used in this research were adopted from previous research conducted by Shankar & Jain (2021), including

1. Likes to collect information about a product online before buying it offline.
2. Likely to collect information about a product before buying it offline.
3. Be sure to collect information about a product online before buying it offline.

## III. METHOD AND MATERIAL

This research aims to test whether the variables identified have a positive and significant relationship to Webrooming Intention. The following is the framework for this research:



**Figure 1. Research Framework**

The population in this study were internet users, the sample size used in this study was calculated using Gpower 3.1 software with error parameters = 5%, statistical power = 95% and number of predictors = 3, resulting in a total sample size of 119 people. To obtain greater statistical power, the number of questionnaires that will be distributed is approximately 200 respondents. The data collection method in this research uses a questionnaire. In this study, the questionnaire was distributed electronically or online in the form of a Google form and distributed via social media Whatsapp and Instagram. The questionnaire given to respondents will then be measured using a Likert scale. The data analysis method in this research uses Partial Least Square (PLS). Partial Least Square (PLS) analysis is a multivariate statistical technique that compares multiple dependent variables and multiple independent variables. PLS model evaluation is carried out by evaluating the outer model and inner model.

## Analysis of Determinants of Webrooming Intention

### IV. RESULT AND DISCUSION

Respondent data shows that based on gender, the respondents were dominated by 115 women (50.9%). Based on monthly income, it is dominated by respondents with income of less than 4,000,000. based on age, the respondents were dominated by the age range 24 – 39 years as many as 110 people (48.7%). Based on education, the respondents were dominated by Bachelor (S1) as many as 108 (47.8%). Based on occupation, respondents were dominated by private employees, 99 (43.8%). Based on the domicile of the respondents, it was dominated by 82 respondents (36.3%).

**Table 1. Reliability and Validity**

Variable	Indicator	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Perceived Usefulness of Online Search (PUOS)	PUOS 1	0,788	0,827	0,878	0,591
	PUOS 3	0,761			
	PUOS 4	0,815			
	PUOS 5	0,766			
	PUOS 6	0,710			
Perceived Ease of Online Search (PEOS)	PEOS 1	0,798	0,915	0,932	0,661
	PEOS 2	0,832			
	PEOS 3	0,764			
	PEOS 4	0,640			
	PEOS 5	0,855			
	PEOS 6	0,759			
	PEOS 7	0,839			
Sales Staff Assistance	SSA 1	0,786	0,870	0,898	0,558
	SSA 2	0,711			
	SSA 3	0,721			
	SSA 4	0,792			
	SSA 5	0,740			
	SSA 6	0,742			
	SSA 7	0,735			
Webrooming Intention	WRI 1	0,713	0,801	0,857	0,503
	WRI 2	0,683			
	WRI 3	0,766			
	WRI 4	0,796			
	WRI 5	0,725			
	WRI 6	0,545			

According to Hair et al. (2017) the factor loading value of an indicator is above 0.7 for the targeted construct. However, factor loading values between 0.4 and 0.7 are still acceptable, whereas if an indicator has a factor loading value below 0.4 then it is not accepted and must be removed from the model. Based on table 2 above, it shows that each indicator has a factor loading value in accordance with the recommended value, so that each indicator can be declared to have passed the test and can be maintained. Each indicator has a Cronbach's Alpha and Composite Reliability value in accordance with the recommended value, namely 0.7, so that all constructs or variables in this research can be said to be reliable. Furthermore, each indicator has an AVE value in accordance with the recommended value, namely 0.5, so it can be declared valid.

**Table 2. Path Coefficients**

Relationship	Path Coefficient	Standard Deviation (STDEV)	T-statistics	P-Value	Decision
Perceived Usefulness of Online Search → Webrooming Intention	0,203	0,113	1,790	0,037	<b>Supported</b>
Perceived Ease of Online Search → Webrooming Intention	0,134	0,103	1,304	0,096	<b>Not Supported</b>
Sales Staff Assistance → Webrooming Intention	0,211	0,065	3,272	0,001	<b>Supported</b>

## Analysis of Determinants of Webrooming Intention

Based on the results of the table above, several hypothesis test results can be concluded, namely:

1. Based on hypothesis testing in this research, the T-statistics value was 1.790, the p-value was 0.037, and the path coefficient value was 0.203. The T-statistics value is greater than the T-table value of 1.645, the p-value is in accordance with what is recommended, namely less than 0.05, and the path coefficient value shows a positive value. These results indicate that perceived usefulness of online search (PUOS) has a positive and significant effect on webrooming intention so that H1 is accepted. The results of this research are in line with research conducted by (Abdilla, 2023) where the results of his research show that Perceived Usefulness of Online Search has a positive and significant effect on Webrooming Intention.
2. Based on hypothesis testing in this research, the T-statistics value was 1.304, the p-value was 0.096, and the path coefficient value was 0.134. The T-statistics value is less than the T-table value of 1.645, the p-value does not match the recommended value, namely less than 0.05, and the path coefficient value shows a positive value. These results indicate that perceived ease of online search (PEOS) has no effect on webrooming intention so that H2 is rejected. The results of this research are in line with Shankar & Jain (2021) that there is no influence between Perceived Ease of Online Search on Webrooming Intention.
3. Based on the hypothesis test in this research, the T-statistics value was 3.272, the p-value was 0.001, and the path coefficient value was 0.211. The T-statistics value is greater than the T-table value of 1.645, the p-value is in accordance with what is recommended, namely less than 0.05, and the path coefficient value shows a positive value. These results indicate that sales staff assistance has a positive and significant effect on webrooming intention so that H3 is accepted. The results of this research are in line with research conducted by (Abdilla, 2023) where the results of his research show that Sales Staff Assistance has a positive and significant effect on Webrooming Intention.

## V. CONCLUSIONS

Based on the analysis and discussion, it can be concluded as follows:

1. The significant influence of Perceived Usefulness of Online Search (PUOS) on Webrooming Intention shows that consumers utilize the features available in the marketplace such as relying on the opinions of other consumers and available product descriptions to make their final purchasing decisions. The process of reading online reviews from other consumers and product descriptions is considered to be a useful source of information and helps in the offline purchasing decision making process.
2. The influence of perceived ease of online search on webrooming intention shows that consumers do not consider ease of online search in marketplace features as an important factor. In this case, consumers feel that increasingly developing technology has made it easier for them to search for product information online so that consumers feel that Perceived Ease of Online Search no longer provides benefits for them.
3. The significant influence of Sales Staff Assistance on Webrooming Intention shows that consumers consider salespeople to be very helpful in the purchasing process. The availability of assistance from salespeople is an attraction for consumers to switch from online to offline shopping, because in the context of online shopping consumers do not get a direct response from salespeople when they encounter difficulties or want to ask questions about the product they want to buy. So having salespeople available in the shop makes it easier when you want to communicate about products.
4. It is hoped that this research can provide a reference for future researchers in developing theories using other variables, such as Need for touch, Anticipated Regret, Online Risk Perception or other variables that can influence Webrooming Intention.

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## Competitive Advantage as Intervening Variable on Marketing Performance of Songket Melayu MSM Enterprises



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**ABSTRACT:** This research departs from the problem that whether competitive advantage as an intervening variable has an influence on the marketing performance of Songket Melayu MSM Enterprises, Indonesia. The purpose of this study was to determine and analyze how much the effect of competitive advantage mediates the marketing performance of Songket Melayu MSM Enterprises, then to see whether competitive advantage can mediate digital marketing, product innovation and product quality on marketing performance. The primary data collection technique is in the form of distributing questionnaires using a Likert scale. The population in this study were of Songket Melayu MSM Enterprise that have innovated and carried out digital marketing. The sampling technique was purposive sampling, which is based on predetermined criteria. The criteria in this study are: a) Owner of Songket Melayu MSME's who have been doing digital marketing for at least the last 2 years, b) Songket Melayu MSMEs who innovate their products, c) Songket Melayu MSM Enterprises that have been established for at least the last 5 years. Based on these criteria, a sample of 68 Songket MSMEs was obtained. The data analysis technique uses quantitative analysis with path analysis. The analysis tool uses the SmartPLS 4 application. The results showed that: 1) competitive advantage has a positive and significant effect on marketing performance with a T-Statistic value of  $2.066 > 1.96$  and a P-Value of  $0.019 < 0.05$ . 2) competitive advantage is able to mediate digital marketing on marketing performance with a T-statistic value of  $2.359 > 1.96$  and a p-value of  $0.047$ . 3) competitive advantage is able to mediate product innovation on marketing performance with a T-statistic value of  $4.234 > 1.96$  and a p-value of  $0.001 < 0.05$ . 4) competitive advantage is able to mediate product quality on marketing performance with a T-statistic value of  $3.755 > 1.96$  and a p-value of  $0.040 < 0.05$ . Overall, the results of this study indicate that competitive advantage has a direct positive influence on marketing performance, and also serves as an important mediator in the relationship between factors such as digital marketing, product innovation, and product quality and marketing performance. These findings can provide important insights for business practitioners in optimizing their strategies to improve marketing performance.

**KEYWORDS:** Digital Marketing, Product Innovation, Product Quality, Marketing Performance, Competitive Advantage

### I. INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are productive business units that stand alone and are carried out by individuals or business entities in all economic sectors, as written in Law No. 20 of 2008 concerning Micro, Small and Medium Enterprises. In the structure of the Indonesian economy, MSMEs are one of the important pillars in supporting the economy, so the government must strive to encourage and strengthen MSMEs. Indonesian MSMEs in 2022 reached 64.2 million and contributed to the Gross Domestic Product by 61.07 percent or reached Rp. 8,573.89 Trillion. Furthermore, MSMEs are able to absorb 97% of the workforce and are able to increase the value of national investment. Furthermore, out of 64.2 million MSMEs, only 15.3 million MSMEs have been integrated with the digital ecosystem, meaning that 23.9 percent of MSMEs have entered the digital platform. The development of MSMEs continues to increase, especially in Palembang City. In Palembang city, the total number of Micro, Small and Medium Enterprises (MSMEs), based on a report from the Central Bureau of Statistics of Palembang, is 7,500 MSMEs. Among them are the culinary sector, fashion, crafts and so on. One sector that has also experienced development is Songket MSMEs. Based on the data, there are 105 Songket MSM Enterprises. Songket of Palembang has been recognized in various city districts in Indonesia and even abroad including Malaysia, Brunei Darussalam, Singapore, Japan and several consumers from Europe. Owner of Songket Melayu Enterprises continue to innovate according to the wishes of the times. Songket, which was originally only used for sacred events and noble circles, can now be reached by all groups, including millennials. Various derivative products have also

emerged so that they can be used daily. songket is one of the local wisdom. Based on several previous studies, the results show that there is a positive and significant influence between competitive advantage on marketing performance, where if the company has competitive advantage compared to other companies, it will create marketing performance (Rahmad Hudapi Purba, 2022) . However, there are also studies that state that competitive advantage has a negative and insignificant effect on marketing performance (Kurniawan & Mudiantono, 2018).

## **II. LITERATURE REVIEW**

### **A. Resource Based View Theory (RBV)**

Resource based view theory (RBV) is a theory used to describe an advantage for companies, competitive advantage is obtained by utilizing and managing its resources properly. Competitive advantage is something that is inherent in the company and difficult to imitate by other companies. In the resources owned by the company, the resource-based view theory believes that the company as a collection of capabilities is able to manage these resources. manage these resources.

### **B. Marketing Performance**

Marketing performance is a measure of achievement obtained from the overall marketing process activities of a company or organization (Ferdinand, 2003). To achieve goals, companies must have a marketing strategy (Irham Fahmi, 2013). Marketing performance is an important element of a company's performance in the company in general because the performance of a company can be seen from the marketing performance that has been done so far (Wiyadi et al., 2021).

### **C. Competitive Advantage**

Competitive advantage is anything that can be competitive advantage is everything that a company can do better than rival companies or a collection of strategies to determine the advantage of a company from competition among other companies (Fred R. David, 2017). Competitive advantage cannot be understood by looking at a company, but must be from the origin of competition, carried out by various companies designed by the company in designing, producing, marketing, searching and marketing. in designing, producing, marketing, sourcing and supporting its products. support its products (Hunger, 2003).

## **III. RESEARCH METHODS**

The type of research used is using the quantitative method. Quantitative method is researching whose data is expressed in numbers and analyzed with statistical techniques. in numbers and analyzed with statistical techniques (Suryani & Hendryadi., 2015). In this research data source used is primary data. Primary data is data obtained or collected directly in the field by the person conducting the research or the person concerned who needs it (Bagas sunu pratama, 2017). doing research or concerned who need it. Primary data in this study This is the answer to the questionnaire distributed to respondents who are Palembang City Songket MSME actors. Palembang City Songket MSME players. To measure respondents' attitudes to this research question using a Likert scale. Population is the sum of all units or individuals whose characteristics are to be studied. The information (characteristics) collected from the unit of analysis forms statistical data. form a statistical data. The population that will be selected and The population that will be selected and used as objects in this study, namely Songket MSMEs. Palembang market their products digitally and innovate. The sample is part of the population whose characteristics are to be investigated, and is considered to represent the entire population (Sasmita, 2021). The sampling technique in this study was Purposive sampling (Sugiyono, 2019). Purposive sampling is the determination of samples based on predetermined criteria. The criteria in this study are: a). Palembang City Songket MSME players who have been doing digital marketing for at least the last 2 years, b). Palembang City Songket MSME players who innovate their products. product innovation c). Songket MSMEs that have been established for at least the last 5 years. Based on these criteria, a sample of 68 Songket MSM Enterprises.

## **IV. RESULTS**

The number of respondents collected was 68 respondents which derive from Songket Melayu MSM Enterprise. Jumlah responden yang terkumpul sebanyak 68 responden yang berasal dari pelkawk UMKM Songket Kota Palembang Furthermore, measurements are carried out through processing and analyzing questionnaire data using the SmartPLS 4.0 application. The PLS algorithm is used to process data as follows.

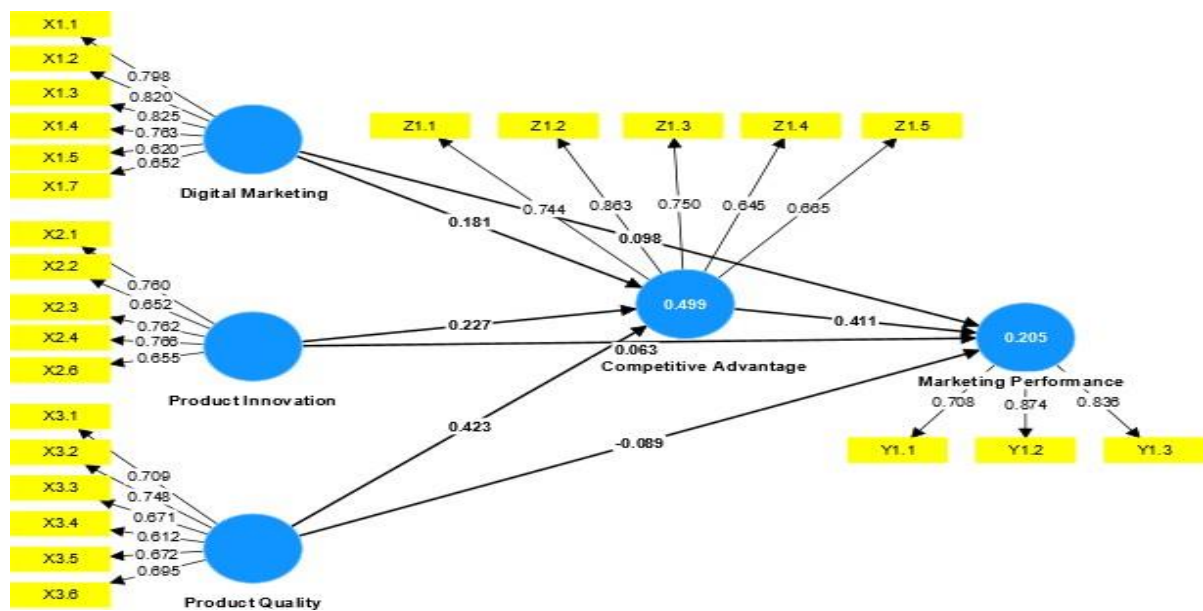


Figure 1: PLS Algorithm

Figure 1: Evaluation of the PLS algorithm model (external model) done by testing the validity of external loading. The purpose of the validity test to measure validity of the survey and shows the correlation or relationship between the indicators and the latent variables. This test is said to be valid if each indicator has a high correlation value, namely external loading > 0.6. If outer loading < 0.6 then the question indicator on the questionnaire is invalid and can be removed (Chin w.w, 1998).

Table 1. Validity Test

Variable	Indicator	Loading Factor
Digital marketing (X1)	X1.1) With digital marketing, in a short time companies can reach consumers anywhere.	0.798
	X1.2) The company is more efficient in marketing products	0.820
	X1.3) Communication goes well between the company and consumers directly	0.825
	X1.4) With digital marketing, companies can communicate with consumers even without meeting face-to-face.	0.763
	X1.5) The company gives gifts to loyal customers	0.620
	X1.7) The company provides products according to what consumers want	0.652
Product Innovation (X2)	X2.1) The company produces products that are different from other products	0.760
	X2.2) The company continues to innovate existing products	0.652
	X2.3) The products created follow the current trend	0.762
	X2.4) The company develops products that are created in the same business category as other competitors	0.766
Product Quality (X3)	X2.6) The resulting product was modified in terms of appearance	0.655
	X3.1) The product provided is in accordance with the specifications offered	0.709
	X3.2) The company provides products according to consumer desires so that consumers feel satisfied	0.748
	X3.3) The company provides products with good durability	0.671
	X3.4) The quality of the product provided can last long even if it has been used for a long time	0.612
	X3.5) Companies offer products with attractive designs so that consumers are interested in products	0.672
Marketing Performance (Y)	X3.6) Products are offered with good features in order to attract consumers to buy products	0.695
	Y1.1) Product sales at the company have increased from before	0.708
	Y1.2) The number of customers in the company continues to grow from time to time	0.874

Competitive Advantage (Z)	Y1.3) The company experiences profit from product sales	0.836
	Z1.1) The company always focuses on the products offered to consumers to be superior to others	0.744
	Z1.2) The company always prioritizes customer satisfaction	0.868
	Z1.3) Products are created differently from other competitors so that consumers choose the products offered	0.750
	Z1.4) The distinctive features of the products offered have their own appeal	0.645
	Z1.5) The company provides good products at a low price	0.665

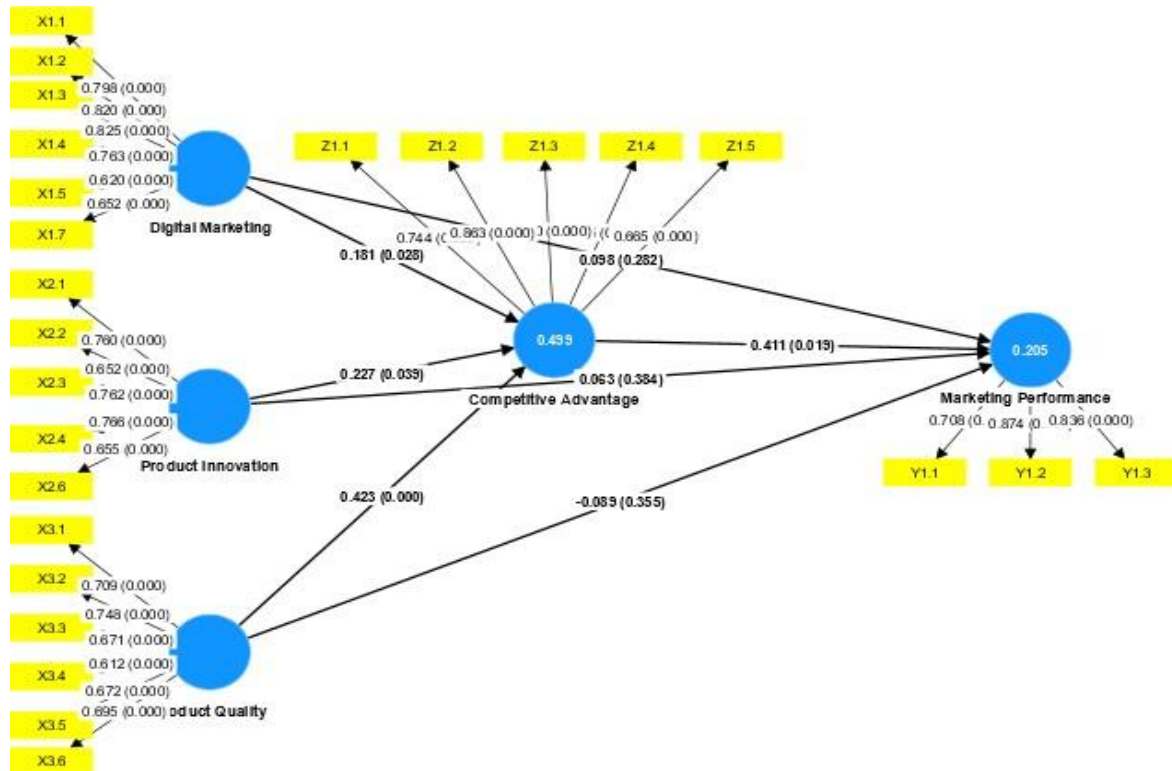
Based on table 1 shows that all indicators on digital marketing variables (X1), product innovation (X2), product quality (X3), and marketing performance (Y) and competitive advantage (Z) are declared valid. In the table there are evidence of meeting the requirements, namely there is an external load value > 0.6.

**Table2. Cronbach's alpha test, composite reliability test (rho\_c), AVE test**

	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Product Innovation	0.768	0.773	0.843	0.520
Competitive Advantage	0.786	0.794	0.855	0.544
Marketing Performance	0.736	0.762	0.850	0.655
Product Quality	0.780	0.787	0.842	0.521
Digital Marketing	0.845	0.868	0.884	0.564

Based on table 2, it can be concluded that all constructs meet the reliability criteria, this is indicated by the composite reliability value > 0.70 and AVE > 0.50, meaning that the statement shows the results of meeting the reliability test or consistent answers. One method used to test reliability is the Cronbach's alpha test which is often used (slamet and wahyuningsih, 2022).

The results of the R<sup>2</sup> test and hypothesis testing are shown in Figure 2. The bootstrap value is used to measure the level of influence between variables..



**Figure 2. Bootstrapping values**

**Table 3. Coefficient of Determination**

R-square is used to measure the predictive power of the structural model. R-Square explains the effect of certain exogenous latent variables on endogenous latent variables whether they have a substantive effect. R-square values of 0.67, 0.33 and 0.19 indicate

strong, moderate and weak models.

Variable	R-Square	R-square adjusted
Competitive Advantage	0.779	0.776
Marketing Performance	0.605	0.655

Table 3 shows that the Adjusted R-Square value is 0.0.776. These results explain that the percentage of competitive advantage (Z) is 77.6% and for the marketing performance variable (Y) with a value of 0.655 or 65.5%. This shows that 77.6% of the competitive advantage variable (Z) is influenced by digital marketing (X1), product innovation (X2) and product quality (X3) and 65.5% of the marketing performance variable (Y) is influenced by digital marketing (X1), product innovation (X2), product quality (X3) and competitive advantage (Z)..

**Table 4. Hypothesis Testing**

	Original sample (O)	Sample mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
H1. digital marketing->competitive advantage -> marketing performance	0.074	0.075	0.055	2.359	0.047
H2. product innovation -> competitive advantage -> marketing performance	0.093	0.091	0.075	4.234	0.001
H3. product quality -> competitive advantage -> marketing performance	0.174	0.175	0.099	3.755	0.040

**V. DISCUSSION**

Based on table 4, the test results with bootstrapping in this study from PLS analysis are as follows:

1. The effect of digital marketing on marketing performance through competitive advantage in Songket Melayu MSM Enterprises.

The effect of digital marketing on marketing performance through competitive advantage. Songket Melayu MSM Enterprises is indicated by a T-statistic value of 2.359 > 1.96 and a p-value of 0.047. this means that hypothesis is accepted. This means that indirectly digital marketing through competitive advantage has a positive and significant effect on the marketing performance of MSMEs. This means that if a business maximizes digital marketing, it will create a competitive advantage. So that if a business is able to excel in competing with other businesses, it will create marketing performance. This result is supported by the RBV theory, where by utilizing existing resources such as maximizing digital marketing, it will create a competitive advantage. utilizing existing resources such as maximizing digital marketing, is able to compete with other similar companies, so that it will make the company have good marketing performance. The results of this study are in line with the results of research conducted by Berti Yuliana Sekardwiwangi and Maria Augustine Graciafernandy with the research title of the effect of competitive advantage as a mediating variable on the relationship between digital marketing and marketing performance. The results of the study resulted in a significance value stating that competitive advantage plays a role in mediating the relationship between digital marketing and marketing performance (Sekardwiwangi et al., 2023). These results contradict research conducted by Noor Hudha, Marjam Desma Rahadhini and Aris Eddy Sarwono with the research title competitive advantage as a mediator between digital marketing and marketing performance (survey on lurik weaving MSMEs in village, cawas, klaten) with the results of this study showing that digital marketing has no effect on marketing performance through competitive advantage. The higher digital marketing does not guarantee an increase in marketing performance through competitive advantage (Hudha et al., 2022).

2. The effect of product innovation on marketing performance through competitive advantage in Songket Melayu MSM Enterprises.

The effect of product innovation on marketing performance through competitive advantage is indicated by a T-statistic value of 4.234 > 1.96 and a p-value of 0.001. this means that hypothesis is accepted. This means that indirectly product innovation through competitive advantage has a positive and significant effect on the marketing performance of MSMEs. This means that if a business is able to create products according to consumer desires then it will make the company superior in competition. So that with competitive advantage it will have a positive impact on improving marketing performance. This results are supported by the RBV theory, where by utilizing the resources owned such as the creation of new products is a strategy in creating competitive advantage. is a strategy in creating competitive advantage so that it will have a positive impact on competitive advantage so that



it will have a positive impact on the marketing performance of a company. This research conducted by Achadyah prabawati and Melia handayani with the title market orientation and product innovation their effect on marketing performance with intervening variables of competitive advantage in umkm kaliwates sub-district. With the results of the study where the product innovation variable has a positive but insignificant effect on marketing performance through competitive advantage (Achadyah prabawati dan Melia handayani, 2019).

### 3. The effect of product quality on marketing performance through competitive advantage in Songket Melayu MSM Enterprises

The effect of product quality on marketing performance through competitive advantage is indicated by a T- statistic value of  $3.755 > 1.96$  and a p-value of 0.040. this means hypothesis is accepted. This means that indirectly product quality through competitive advantage has a positive and significant effect on the marketing performance of MSMEs. This means that indirectly product quality through competitive advantage has a positive and significant effect on MSME marketing performance. These results are supported by the RBV theory, where by utilizing the resources owned, namely by providing quality products, a company will achieve competitive advantage.

quality products will make a company achieve a competitive advantage with other similar companies so that it will create good marketing performance for the company. This research is in line with research conducted by Findi Arista Dyah Arumsari with the research title The Effect of Product Quality on Business Performance Through Competitive Advantage (study on umkm batik in Yogyakarta). With the results of the study, product quality has a positive and significant effect on business performance through competitive advantage in songket melayu MSM Enterprises (Arumsari, 2020).

Implications of the research results: 1) Implications in the field of marketing, with regard to RBV theory. This study proves that there is a significant influence of digital marketing, product innovation and product quality that is carried out or implemented by owner Songket melayu MSM Enterprise in Implications in the field of marketing, with regard to RBV theory. This study proves that there is a significant influence of digital marketing, product innovation and product quality that is carried out or implemented by Owner Songket Melayu MSM Enterprises in run or applied. This is in line with RBV theory which discusses regarding the utilization of company-owned resources. Where to achieve good marketing performance, Songket melayu MSM Enterprise have applied or maximized their resources. 2) In deciding to make purchases at songket melayu MSM Enterprises, consumers pay attention to matters relating to how marketing is done, the novelty of the products offered and whether existing products have good quality and their own advantages over other products. its own advantages from other products. So that this is So that this is something that must be the focus of a business in order to improve the marketing performance of its songket melayu MSM Enterprises. 3) Based on the conclusions that have been stated, the results in this study shows that digital marketing, product innovation, product quality, competitive advantage are factors that affect the improvement of marketing performance. The implication of this research is Songket melayu MSM Enterprises can further maximize digital marketing, product innovation and product quality. maximize digital marketing, product innovation and product quality products so as to maximize marketing performance in order to have a good impact on the company's progress. 4) Based on the research results, for the songket melayu MSM Enterprises . This research can be used as evidence of how important digital marketing digital marketing, product innovation and product quality for the company's marketing performance. the company so that it must continue to pay attention to and apply the existing resources in order to prevent the failure of a business.

## VI. CONCLUSION

Based on the results of the research and discussion of the test, it can be concluded that Competitive Advantage (Z) is able to mediate digital marketing (X1) on marketing performance (Y) in Songket Melayu MSM Enterprises, Competitive Advantage (Z) is able to mediate product innovation (X2) on marketing performance (Y) in Songket Melayu MSM Enterprises and Competitive Advantage (Z) is able to mediate product quality (X2) on marketing performance (Y) in Songket Melayu MSM Enterprises. Overall, the results of this study indicate that competitive advantage has a direct positive influence on marketing performance, and also serves as an important mediator in the relationship between factors such as digital marketing, product innovation, and product quality and marketing performance. These findings can provide important insights for business practitioners in optimizing their strategies to improve marketing performance.

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## Practices and Readiness of Pamantasan Ng Cabuyao Education Graduates in Licensure Examination: Basis for Action Plan Examination for Teachers



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**ABSTRACT:** Belen et al. (2018) states that LET is the only measure and standard determinant to consider the readiness of BEED and BSED graduates to practice teaching. This study focuses on the practices and readiness of Education Graduates of PNC in taking LET. A quantitative research design is explicitly used, the descriptive-correlational, to identify the relationship between practices and readiness of the chosen respondents through purposive sampling. The results revealed that the most common practice of the graduates is self-review. Results also highlighted that even though the learning of Batch 2022 graduates has been compromised by the pandemic and transitioned to online learning, they have a good level of content knowledge. There is a significant relationship between the practices and readiness of the graduates to take the LET. The researcher concludes that the majority of the graduates are working while waiting for the LET, and they are about to take the LET at in soonest possible time. In preparation for the examination, most graduates reviewed at home rather than in review centers due to lack of financial sustainability. Conversely, the graduates are resourceful in looking for ways to pay the necessary requirements in taking LET. The following recommendations are offered for related research in the field of students' and graduates' preparation for licensure examination. There should be a free LET Review offered by the school and LGU, quality review towards review centers, curriculum review of Education courses. Lastly, to create an Action Plan Examination for Teachers to address the gap of this research.

**KEYWORDS:** practices, readiness, LET, licensure examination for teachers,

### INTRODUCTION

"By failing to prepare, you are preparing to fail"-Benjamin Franklin. Most of the time, students from their undergraduate studies, having been conferred as graduates, have a lot of options and choices in which they must choose after 4-year academic struggles to achieve their desired baccalaureate degrees. But, for programs with licensure examinations or board examinations, it is of the utmost imperative for the degree holders to consider their readiness upon taking this test. Consequently, for the Education Degree Holders, the Licensure Examination for Teachers is one of the determining factors for them to be called Licensed Professional Teachers, which is a basic requirement to teach in any public and private schools.

To prepare the education graduates of the Pamantasan ng Cabuyao, the researcher has initially conducted a pre-survey to determine the readiness of the graduates to take the LET, and based on the findings, only a few are yet ready to take the said examination despite the fact that the school has prepared them by providing quality and competent teaching during their studies. In all fairness, regarding the LET Performance for two consecutive recently released results, BEED had 74.56% overall performance, and BSED had 67.42% overall performance last October 2022, and recently last March 2023, BEED had 60.98% overall performance, and BSED had 64.94% overall performance. Interestingly, the results of the two consecutive LET are all above the passing rate, but since the institution aims to increase the passing rate of its graduates as one of the measurements of quality education, it is imperative to assess the readiness and their practices prior to taking the LET.

On top of that, Batch 2022 graduates are the first set of graduates who underwent the K-12 Program, the first set of graduates who completed the new curriculum in the Teaching Programs, and the set of graduates whose studies have been compromised due to Covid-19 resulting to their last two years in college to be in remote learning, virtual learning, and modular learning. Considering these factors, the researcher finds it interesting what could be their plans and practices to cope with the learning loss due to the pandemic and how ready they are to take the LET despite the fact that there has been a learning loss during their studies. With that, an action plan will be proposed by the researcher to cope with the learning losses that graduates have in

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order to help them be ready for their Licensure Examination in 2023.

### LITERATURE REVIEW

#### *Licensure Examination for Teachers*

The Licensure Examination for Teachers is considered as the litmus test for the quality of education provided by every Education College a Higher Institution has (Bonior & Dela Rama, 2018). It is articulated in the Statement Policy in Republic Act 7836: An Act to Strengthen the Regulation and Supervision of the Practice of Teaching in The Philippines and Prescribing a Licensure Examination for Teachers and for Other Purposes, which states that:

*[t]he State recognizes the vital role of teachers in nation-building and development through a responsible and literate citizenry. Towards this end, the State shall ensure and promote quality education by proper supervision and regulation of the licensure examination and professionalization of the practice of the teaching profession.*

R.A. 7836 further states that the Licensure Examination for Teachers has two primary objectives; first, to promote, develop, and professionalize teachers and the teaching profession, and second, to supervise and regulate the licensure examination (Bonior & Dela Rama, 2018). As stated by Belen et al. (2018), LET is the only measure and standard determinant in order to consider the readiness of BEED and BSED graduates to practice teaching. When a graduate of the education program passes the LET, he or she has truly acquired the necessary skills and knowledge during his/her pre-service training. In Teacher Education Institutions, it is very important to get a higher percentage of passing rate in LET for this high performance indicates that the school has better quality teaching and excellence in standards (Belen et al., 2018).

When a pre-service teacher graduates from college, it is imperative for him/her to take the Licensure Examination for Teachers for him/her to qualify to teach, particularly in Public Schools. In the United States, all prospective teachers must pass the Licensure Examination for Teachers for them to receive a teaching license that serves as an assessment of their knowledge of what particular subject(s) they want to teach. Furthermore, these licensure tests are tests that have been developed and approved by state agencies to measure the prospective teachers' basic qualifications for licensure in that particular state. Same with other licensure examinations in the US, the preparation programs and interventions are not totally under control by the state; however, they are heavily influenced by them. The licensure examination for teachers in the US does not serve as a measurement for their achievement, intelligence, or diagnostic test but rather an independent practice only as a "teacher record" in which entry-level knowledge only has been assessed. The scores of the takers are collated through compensatory scoring, which is then translated into a scaled score. Test takers may fail on a certain part of a test but may pass on the test as a whole, depending on which part of the test did he/she pass or fail. Lastly, the test takers who fail the test can retake it as many times as they wish (Pollard, 2019).

In the Philippines, R.A.7836, An Act to Strengthen The Regulation and Supervision of the Practice of Teaching in the Philippines and Prescribing a Licensure Examination for Teachers and for other Purposes, stipulates several mandates, qualifications, and processes to become full-fledged teachers. For example, for elementary teachers, there is a need to attain a bachelor's degree in elementary education or its equivalent, while for secondary teachers, a bachelor's degree in education or its equivalent with major and minor specializations and with at least ten units in professional education. In the research of Aquino & Balilla (2015), Pre- Service Teacher's Licensing Examination Plans and Content Knowledge as supported by the study of Jaycen (2020), emphasizes the importance of testing requirements for licensing and certifications on the quality of effectiveness of teachers. The LET is a good measure of the quality of teachers once they pass the said exam. There might be takers who will fail the LET, and that is a greater avenue for Teacher Education Institutions to prepare their students, particularly in the content knowledge. With these efforts, graduates may be able to pass the LET and be given the title of LPT (Licensed Professional Teacher).

Likewise, passing the Licensure Examination for Teachers requires adequate readiness as Professional Regulation Commission administers the examination. To pass the exam, an examinee must obtain an average of not less than 75% and must have no rating lower than 50% in any of the tests. LET for elementary level covers the topics from General Education (GenEd) 40% and Professional Education (ProfEd) 60%, while in the secondary level, (GenEd) 20%, (ProfEd) 40% and (area of specialization/major) 40% (PRC,2022).

#### *Review as one of the Practices of Graduates before taking LET*

LET takers have various ways of preparation before taking the exam, and there is a wide variety of resources used by students to review for the licensure examination, and the kind of reviewer they reviewed varied from every discipline. The performance of every State University and Colleges (SUC) in the teacher licensure examination plays a crucial role in the accreditation process, determining their eligibility as a center of development and excellence. Furthermore, it can also impact the overall performance of each university (Ventayen, 2020)

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The study conducted by Ventayen (2020) titled Academic Predictors of the Licensure Examination for Teachers: A Thematic Review of Studies Investigating Students Performance reveals that teacher education graduates have various plans after graduation like, look for employment, enrolling in a review center and to have a self-review due to financial issues and conflict of schedule. Moreover, of a total of 88 graduates, there were 73% decided to take the upcoming LET, while 27% were undecided. In the same study conducted, SUCs must provide in-house review classes; faculty members must prepare examinations in line with LET, conduct further research in other subject areas, and must study other contributing factors affecting the LET preparations of the students.

On top of that, is that they believed that enrolling in review centers would greatly improve their chances of passing the board, and they have support from their parents. They also believed that doing self-review in the house might be affected by the household chores and the environment they have. They also emphasized that it is their personal choice to enroll in a review center. For others, they needed peer pressure and a strict schedule to follow, consequently allowing them to learn better in groups rather than being alone. Lastly, they chose to enroll in a review center to be updated with the latest trends and development in the field of teacher education. LET takers opt to have self-review instead of enrolling in the review centers due to financial incapacity, and some must work immediately after graduation (Ventayen, 2020).

Thus, to prepare students for the LET, Teacher Education Institutions should offer intensive review programs for the 3 main areas of the LET, general, professional, and specialized subjects. There should be continuous intervention, such as surveying the students and identifying their weaknesses as the basis for training and development.

In another study conducted by Roman, A. & Fiscal, R, 2021.: Pre-licensure examination as predictor of licensure examination in which they examined 71 elementary education (BEED) graduates and 127 secondary education (BSED) graduates in Laguna State Polytechnic University, Laguna, Philippines. Pre-licensure or Mock Review is one indicator to determine licensure examination results based on the actual LET. Results imply that practices of the school in terms of giving instruction and initiatives in conducting Pre-LETreview contribute to the assurance of passing the actual examination. The result in the study of Roman, A. & Fiscal, R, 2021 is supported by the quasi-experiment conducted by Manlangit, 2020 that after undergoing mock exam, review sessions, and receiving review materials, 50% of the BEED graduates were able to pass the LET. Moreover, the result shows that mock exams and supplemental materials give adequate preparations for the graduates to pass the LET.

In addition, constant participation in an in-house review builds students' confidence and prepares them to take the LET, which will result in an increased assurance of passing the licensure examination. Bansiong (2019) conducted a study about the exploration of the formula for LET success in the Philippines, with the pre-board total score as a significant predictor of the performance in the LET. The results of the study imply that review classes are effective contributors to the success of LET. Likewise, he argued that the result in a simulated examination has a significant effect on the actual examination performance and that the constructed mock examination of the College of Teacher Education can validly predict the performance in the LET.

### *Training and Seminars for Teachers in the Academe*

One of the important professional development strategies for teachers is training and seminars. In the 21<sup>st</sup> century, professional development is the engagement of teachers in training and enhancement seminars to equip themselves with the necessary knowledge, skills, and values. In a blog post by Edposts, it was emphasized that students who have well-informed and well-trained teachers are more likely to perform than teachers who are not attending enhancement training and seminars. Thus, it is imperative that the school management must pay attention to the professional development of teachers, especially those who are not yet LET Passers and those who just recently graduated.

Teachers in the academe who engage in enhancement training and seminars create a positive learning environment and lead to happy learners who are more than willing to attend school regularly. On-going ongoing Professional Development, like training and seminars, is a crucial part of the teaching-learning process. A teacher who is well-trained is updated with the latest pedagogical strategies in the classroom. Consequently, it is important that teachers must be updated to the latest technology as a tool in enhancing classroom teaching in order for the teaching and learning process to become engaging and interactive. Hence, it is important that teachers must learn to collaborate, innovate, and reflect, which are the skills developed for teachers when attending professional development programs.

One of the professional development programs in the education field is the INSET or the In-service training. According to DepEd Order No. 34, s. 2022 titled "School Calendar and Activities for the School Year 2022-2023," the Midyear In-Service Training is set to take place from February 6 to 10, 2023. The purpose of this training is to consistently improve and strengthen the skills and abilities of both teaching and non-teaching staff members.

The in-service training program holds significance as it fosters a flexible environment, enabling teachers to readily adapt

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to their work settings. It also serves as a source of motivation for both employees and employers, fostering increased creativity within the educational process. By participating in the in-service training program, teachers gain new knowledge and instructional skills that enhance their effectiveness in the classroom. This program places teachers at the forefront of any improvement initiatives within the educational institution. According to Alfaidi & Elhassan (2020), one positive aspect of professional development for teachers is that the program ensures that learning activities are well-planned and focused on empowering teachers to improve policies, curriculum development, teaching methods, and strategies to enhance productivity and student performance.

Anderson (1982:89), as cited by Akpan et al., 2016, in-service training for teachers helps to foster continued professional development. They emphasized that by attending teacher's meetings, seminars, workshops, training sessions, and academic study circles, opportunities can be provided for teachers to be updated with the new trends in the educational field. As such, teachers are also encouraged to file a leave of absence if necessary to pursue higher education for the purpose of increasing teachers' competence and skills.

Thus, it is important that academic institutions recognize the importance of well-structured development programs that are consonant with the teaching-learning requirements of the Department of Education. Teacher development programs should be given utmost importance in the curriculum as they have a vital part as one of the preparations for taking the Licensure Examination for Teachers.

### *Content Knowledge Readiness of Graduates before taking LET*

In passing the Licensure examination for teachers, the graduates must have the best understanding of the different courses or subjects they took during their college days which is called content knowledge and refers to knowledge of the subject and its structures (Grossman, Wilson, & Shulman, 1989). Although there are studies suggesting that a good performance in the academic subjects does not guarantee a passing performance in the teachers' board examination (Ventayen, 2020), nevertheless, it is important that the examinees or students have a good perception of their content knowledge. As the results of the study conducted by (Ventayen, 2020) revealed that there is a significant relationship between academic and LET performance, especially in GenEd, ProfEd, and major subjects. In general, it has been found that there is a vital role in academic performance in LET's overall performance of graduates. Teacher education institutions must strictly screen upcoming enrollees considering 85 and up the general average for the better LET performance rating by an institution.

Moreover, in the study conducted by Andal et al. (2019), a pretest-posttest design was used to measure the readiness of Education graduates of Emilio Aguinaldo College- Cavite, Philippines, through self-made questionnaires and paired t-tests as a statistical tool. Results have indicated that the post-test has a higher mean/percentage than the pretest, which means that the review as an intervention program to equip their students became initially successful. However, the study still further recommends continuing the mentoring and coaching program and improving the existing procedures and strategies in the program to successfully meet the specific needs of the reviewers (Andal et al., 2019).

Another study conducted at the University of Cordilleras by Bansiong (2019) regarding mock examination as one of the practices to influence the performance of examinees for the Licensure Examination for Teachers revealed that mock examinations should not be taken for granted by the examinees and utmost attendance should adhere to boost their confidence in answering the questions as a sort of simulation. There is a significant correlation that was implied on the results of mock examinations and is a valid predictor for readiness in the LET. The mock examination practice conducted by school administrators should be valid, reliable, and balanced (Davis, 1999). A test can be considered valid if the results are significantly useful in making decisions regarding student achievement, and a test has predictive validity if it can estimate how an individual performs a given criteria or task (Albite, 2019).

### *Financial Capability Readiness of Graduates before taking Board Exam*

In a study conducted by Albina et al. 2021, it emerged from their study that financial concern is an issue while reviewing the Criminologist Licensure Examination and eventually taking the exam. While the respondents are still studying during college, it is evident from the data that some students experienced financial difficulties because of the minimum allowance that their parents provided them, that somehow affected their schooling. Consequently, while preparing for the board examination, parents' support is also a vital factor, specifically when parents do not want their children to work right after graduation to support their review and payment of fees for the board exam. One participant emphasized that parents should understand that preparation for the board examination is important, and parents should not expect children to work or give back right after graduation.

In the same study by Albina et al., 2021, the participants have common perceptions that enrolling in a review center can

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increase the chances of passing the board exam and that review centers can enrich the knowledge needed to pass the board exam. Also, attending a review center requires a substantial amount of money, and the participants did not have sufficient resources to support their reviews. Thus, parent's support (financial or moral) is a factor that can contribute to a considerable difference in the taker's performance in the board exam. This was supported by Kwi-Soon and Bok-Sun (20019), who emphasized that the support of participant's families and those around them increase confidence in preparation for the board exam.

### *The present problem with the Licensure Examination for Teachers*

Despite the intensive program and intervention of different colleges and universities, news published from ABS-CBN News last February 14, 2023, titled "Average board passing rate for elementary, HS teachers remain low, says group." The news revealed that based on the 12-year data on the performance of Teacher Education Institutions in the licensure examination for teachers, only 56 percent of TEIs have passing rates, which is below the 12-year national average both for elementary and secondary education. The study's findings, in the opinion of PBE's deputy executive director Diane Fajardo-Valencia, show potential issues with those who wish to become teachers, the organizations that prepare them, and the board exams themselves. In addition, she emphasized that the teacher education curriculum should be reviewed, along with licensure exam questions. Moreover, she highlighted that the results of the study can cause problems for those who want to become teachers, including the schools they want to enroll in, as well as when they are going to take the board exam.

In the same news article on the policy recommendations, PBE said the teacher education curriculum should be reviewed, along with licensure exam questions. He also said that underperforming TEIs should be shut down in order to protect students from poor education and ensure that the time and resources of the students will not be wasted. In response to these problems, Popoy De Vera, chairman of the Commission on Higher Education (CHED), said that they are studying the factors that may have been affecting the performance of the students in the licensure examination, and he also wants the data gathered to be a basis of decision-making.

## METHODOLOGY

### Research Design

This study utilized the quantitative method of research that relies on measuring variables using a numerical system, analyzing these measurements using any of a variety of statistical models, and reporting relationships and associations among the studied variables (APA Dictionary of Psychology). Specifically, this research used descriptive correlational design research studies that aim to provide static pictures of situations as well as establish the relationship between different variables (McBurney & White, 2009).

### Respondents of the Study

The respondents of this study were the education graduates last SY 2021-2022. Specifically, the graduates who did not take yet the Licensure Examination for Teachers last March 2023. They were the first batch to graduate in the K-12 curriculum. Also, the first batch of graduates in the new CHED curriculum. Lastly, they were the batch of graduates whose learning has been compromised when the pandemic hit and affected the schools and institutions.

**Table 1. Respondents of the Study according to Sex**

Respondents	Frequency	Percentage
Male	19	22.1
Female	67	77.9
<b>Total</b>	<b>86</b>	<b>100.0</b>

### Instruments

This study used a self-made questionnaire validated by three (3 experts). The questionnaire has 2 main parts; (1) the level of Practices of Education Graduates and (2) the Readiness of Education Graduates to take LET. Each part has indicative statements to measure the given indicators, review and training, and seminars for the Level of Practices of Education Graduates and content knowledge and financial capability for Readiness of Education Graduates. Also, this study utilized a 4-point Likert scale, as shown in the table below.

**Table 3. 4- Point Likert Scale and Verbal Interpretation for Level of Practices of Education Graduates in taking LET**

Scale	Scaled Response	Scale	Verbal interpretation
1	Never	1.0 – 1.50	Not Practiced



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2	Sometimes	1.51 – 2.50	Slightly Practiced
3	Often	2.51 – 3.50	Moderately Practiced
4	Always	3.51 – 4.00	Highly Practiced

**Table 4.4- Point Likert Scale and Verbal Interpretation for Extent of Readiness of Education Graduates in taking LET**

Scale	Scaled Response	Scale	Verbal interpretation
1	Strongly Disagree	1.0 – 1.50	Poor
2	Disagree	1.51 – 2.50	Fair
3	Agree	2.51 – 3.50	Good
4	Strongly Agree	3.51 – 4.00	Excellent

**Data Collection**

This study utilized a probability sampling technique, a sampling technique in which the researcher selects samples based on the subjective judgment of the researcher rather than random selection (Fleetwood, 2023). Specifically, it utilized the purposive snowball sampling that often proceeds after a study begins and occurs when the researcher asks the participant to recommend another person to be sampled (Creswell, 2012:209).

Consequently, the researcher opted to use an online survey since the participants are in different parts of the locality. The researcher asked the participants to answer the Google form, and afterward, the participants of the study attached e-signature to seal the non-disclosure agreement.

Afterward, the data gathered were tallied, collated, and analyzed by the researcher.

**Data Analysis**

The researcher utilized the following statistical treatment to analyze the data gathered:

1. Mean – is used to determine the level of practice and extent of readiness of Education Graduates in taking the Licensure Examination for Teacher
2. Pearson-R Correlation – is used to determine the significant relationship between the level of practice and the extent of readiness of Education Graduates in taking the Licensure Examination for Teachers.

*Rule of Thumb in interpreting the size of a correlation coefficient*

Size of Correlation	Interpretation
.90 – 1.00 (-.90 – 1.00)	Very high positive (negative) correlation
.70 to .90 (-.70 to -.90)	High positive (negative) correlation
.50 to .70 (-.50 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.30 to -.50)	Low positive (negative) correlation
.00 to .30 (.00 to -.30)	Negligible correlation

*\*Hinkle DE, Wiersma W, Jurs SG (2003). Applied Statistics for the Behavioral Sciences 5th ed. Boston: Houghton Mifflin*

**RESULTS AND DISCUSSION**

**SOP 1. What is the level of practice of the Graduates before taking the Licensure Examination for Teachers in terms of:**

- 1.1. review
- 1.2. trainings and seminars

**Table 5. Assessment of the level of practices of the Graduates before taking the Licensure Examination for Teachers in terms of review.**

Indicative Statements Before I Take the Licensure Examination for Teachers...	Mean	Verbal Interpretation
1. I pay and attend LET reviews from the review center.	2.28	Slightly Practiced
2. I watch free online LET reviews on social media platforms.	3.12	Moderately Practiced
3. I attend free LET review organized by institutions and LGU.	2.93	Moderately Practiced
4. I engage with peers and group review.	2.85	Moderately Practiced
5. I do self-review at our home.	3.08	Moderately Practiced
	<b>2.85</b>	<b>Moderately Practiced</b>

## Practices and Readiness of Pamantasan Ng Cabuyao Education Graduates in Licensure Examination: Basis for Action Plan Examination for Teachers

### Grand Mean

**Legend:** 1.0-1.50= Not Practiced, 1.51-2.50 = Slightly Practiced, 2.51-3.50 = Moderately Practice, 3.51-4.00 = Highly Practiced

**Table 6** shows the level of review practices of the Graduates before taking the LET. The data reveals that statement 5, *I do self-review at home* has the **highest mean  $\bar{x}=3.08$** , which means **moderately practiced** by the graduates. LET takers opt to have self-review instead of enrolling in the review centers due to financial incapacity, and some must work immediately after graduation (Ventayen, 2020).

Conversely, statement 1, *I pay and attend LET reviews from a review center*, has the **lowest mean  $\bar{x}= 2.28$** , which means **slightly practiced**. In the same study conducted by Ventayen (2020), graduates believed that enrolling in review centers would greatly improve their chances of passing the board, and they have support from their parents. They also believed that doing self-review in the house might be affected by the household chores and the environment they have.

In general, the assessment of the level of practices of the Graduates before taking the Licensure Examination for Teachers in terms of review has a **grand mean  $\bar{x}=2.85$**  suggesting they have **moderately practiced** the above statements.

**Table 7. Assessment of the level of practices of the Graduates before taking the Licensure Examination for Teachers in terms of training and seminars.**

Indicative Statements Before I Take the Licensure Examination for Teachers...	Mean	Verbal Interpretation
1. I attend INSET training organized by DepEd.	1.76	Slightly Practiced
2. I attend seminars organized by the school where I am currently affiliated.	3.22	Moderately Practiced
3. I pay and attend seminars and trainings organized by private institutions.	2.16	Slightly Practiced
4. I engage in meaningful discussions during seminars and trainings.	2.93	Moderately Practiced
5. I attend relevant seminars and training organized by LGU.	2.35	Slightly Practiced
<b>Grand Mean</b>	<b>2.48</b>	<b>Slightly Practiced</b>

**Legend:** 1.0-1.50= Not Practiced, 1.51-2.50 = Slightly Practiced, 2.51-3.50 = Moderately Practice, 3.51-4.00 = Highly Practiced

**Table 7** shows the level of training and seminars as one of the practices of the Graduates before taking the LET. The data reveals that the statement 5, *I attend seminars organized by the school where I am currently affiliated*. has the **highest mean  $\bar{x}=3.22$** , which means **moderately practiced** by the graduates. This implies that some of the graduates are already teaching in the academe, though they are yet to take the LET. As supported in the study by Akpan et al. (2016), attending teacher's meetings, seminars, workshops, training sessions, and academic study circles, opportunities can be provided for teachers to be updated with the new trends in the educational field. As such, teachers are also encouraged to file a leave of absence if necessary to pursue higher education for the purpose of increasing teachers' competence and skills.

On the contrary, statement 1, *I attend INSET training organized by DepEd*, has the **lowest mean  $\bar{x}=1.76$** , which means **slightly practiced**. This means that the graduates do not actively engage themselves in the In-service training organized by DepEd. In the study conducted, Uche (1981) emphasized that in order to facilitate and maximize the use of discovered new skills of teaching, teachers must undergo in-service training. According to him, this INSET can help teachers to have mastery of new skills and to be well-informed about the new knowledge, skills, and pedagogies in teaching. Moreover, in a study conducted by Akpan et al. (2016), the In-service training from the Cross River State Government helps the teachers and officers with modern approved techniques, knowledge, and skills to enhance the efficiency, effectiveness, and improved performance of the teachers.

In general, the assessment of the level of practice of the Graduates before taking the Licensure Examination for Teachers in terms of training and seminars has a **grand mean  $\bar{x}=2.48$**  emphasizing that they have **slightly practiced** the above statements.

**SOP 2. To what extent is the readiness of the Graduates before taking the Licensure Examination for Teachers in terms of:**

- 1.1. Content Knowledge
- 1.2. Financial Capability

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**Table 8. Assessment of the level of readiness of the Graduates before taking the Licensure Examination for Teachers in terms of Content Knowledge in General Education Subjects.**

Indicative Statements <i>I have enough knowledge in terms of the following General Education subjects (Elementary and Secondary)</i>	Mean	Verbal Interpretation
1. ENGLISH (Study and Thinking Skills, Writing in the Discipline, Speech and Oral Communication, Philippine Literature, Master Works of the World)	2.79	Good
2. FILIPINO (Komunikasyon sa Akademikong Filipino, Pagbasa at Pagsulat tungo sa Pananaliksik, Masining na Pagpapahayag)	3.28	Good
3. SCIENCE (Biological Science -General Biology; Physical Science- with Earth Science)	3.08	Good
4. MATHEMATICS (Fundamentals of Math, Plane Geometry, Elementary Algebra, Statistics, and Probability)	2.93	Good
5. SOCIAL SCIENCES (Philippine Government New Constitution with Human Rights; Philippine History; Basic Economics, Taxation, Agrarian Reform; Society, Culture with Family Planning; Rizal and Other Heroes; Philosophy of Man; Arts; General Psychology; Information and Communication Technology)	3.35	Good
<b>Grand Mean</b>	<b>3.09</b>	<b>Good</b>

**Legend:** 1.0-1.50= Poor, 1.51-2.50 = Fair, 2.51-3.50 = Good, 3.51-4.00 = Excellent

**Table 8** shows the level of content knowledge readiness on General Education subjects of the Graduates before taking the LET. The data reveals that the *Social Sciences subjects that include Philippine Government New Constitution with Human Rights; Philippine History; Basic Economics, Taxation, Agrarian Reform; Society, Culture with Family Planning; Rizal and Other Heroes; Philosophy of Man; Arts; General Psychology; Information and Communication Technology*, has the **highest mean  $\bar{x}=3.35$**  which means **Good**. The data suggests that the respondents have the greatest content knowledge pertaining to these General Education Subjects, among others.

On the other hand, the *English subject that consists of Study and Thinking Skills, Writing in the Discipline, Speech and Oral Communication, Philippine Literature, and Master Works of the World* has the **lowest mean  $\bar{x}=2.79$** , which means **Good**. This implies that the graduates have the least content knowledge when it comes to linguistics, literature, Basic English Skills, and Language.

In general, the assessment of the level of content knowledge readiness on the General Education subjects of the Graduates before taking the LET has a **grand mean  $\bar{x}=3.09$**  denoting **good** on all the General Education subjects. This implies that the graduates are ready to take the LET because they have adequate general education subject content knowledge.

To be able to pass the LET, the graduates must have a deep and flexible understanding of different courses. This is called content knowledge, which pertains to knowledge of the subject and its organizing structures (Grossman, Wilson, & Shulman, 1989).

**Table 9. Assessment of the level of readiness of the Graduates before taking the Licensure Examination for Teachers in terms of Content Knowledge in Professional Education Subjects.**

Indicative Statements <i>I have enough knowledge in terms of the following Professional Education subjects (Elementary and Secondary)</i>	Mean	Verbal Interpretation
1. Teaching Profession, Social Dimensions of Education	3.26	Good
2. Principles of Teaching, Educational		

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Technology, Curriculum Development	3.30	Good
3. Facilitating Learning, Child and Adolescent Development	3.29	Good
4. Assessment of Student Learning, Developmental Reading	3.29	Good
5. Field Study, Practice Teaching	3.44	Good
<b>Grand Mean</b>	<b>3.32</b>	<b>Good</b>

**Legend:** 1.0-1.50= Poor, 1.51-2.50 = Fair, 2.51-3.50 = Good, 3.51-4.00 = Excellent

**Table 9** shows the level of content knowledge readiness on Professional Education subjects of the Graduates before taking the LET. The data reveals that the *Field Study and Practice Teaching* has the **highest mean  $\bar{x}$  =3.44**, which means **Good**. The data suggests that the respondents have the greatest content knowledge on the different pedagogies in the actual teaching- learning environment. On the other hand, the *Teaching Profession and Social Dimensions of Education* subject has the **lowest mean  $\bar{x}$  =3.26**, which means **Good**. This implies that the graduates have the least content knowledge when it comes to the basic principles and theories about teaching and different social aspects in the teaching-learning process.

In general, the assessment of the level of content knowledge readiness on the Professional subjects of the Graduates before taking the LET has a **grand mean  $\bar{x}$  =3.32** denoting **good** on all the Professional Education subjects. This implies that the graduates are ready to take the LET because they have adequate professional education and subject content knowledge.

To reiterate, the graduates must have a deep and flexible understanding of different courses in order to pass the LET. This is called content knowledge, which pertains to knowledge of the subject and its organizing structures (Grossman, Wilson, & Shulman, 1989).

### **Table 10. Assessment of the level of readiness of the Graduates before taking the Licensure Examination for Teachers in terms of Financial Capability.**

Indicative Statements	Mean	Verbal Interpretation
<i>I have enough resources to...</i>		
1. Pay and attend review offered by review centers	2.95	Good
2. Pay in getting and processing necessary requirements like (PSA birth certificate, TOR, and honorable dismissal).	3.30	Good
3. Pay the fees for LET.	3.10	Good
4. Sustain transportation fares/fees in processing requirements.	3.17	Good
5. Buy pencils, pens, white polo shirts, envelopes, and other requirements on the day of examination.	3.44	Good
<b>Grand Mean</b>	<b>3.20</b>	<b>Good</b>

**Legend:** 1.0-1.50= Poor, 1.51-2.50 = Fair, 2.51-3.50 = Good, 3.51-4.00 = Excellent

Table 10 shows the level of financial capability readiness of the Graduates before taking the LET. The data reveals that statement 5, *I have enough resources to buy pencils, pen, white polo shirt, envelope, and other requirements on the day of examination*, has the **highest mean  $\bar{x}$  =3.44** which means **Good**. The data suggests that the respondents can surely afford to buy the requirements and understand that PRC is strict to implement that no requirements, no exam policy. On the other hand, statement 1, *I have enough resources to pay and attend reviews offered by review centers*, has the **lowest mean  $\bar{x}$  =2.95**, which means **Good**. This indicates that the graduates have a financial struggle to enroll in review centers due to lack of financial resources and support from family.

In general, the level of financial capability readiness of the Graduates before taking the LET has a **grand mean  $\bar{x}$  =3.20** denoting **good** on all the statements. This implies that they are willing to be resourceful in order to pay the necessary fees relative to the requirements and preparations for LET.

In the study conducted by Kwi-Soon and Bok-Sun (2019), parent's support (financial or moral) is a factor that can contribute to a considerable difference in the taker's performance in the board exam considerably support of participant's families and

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those around them increase the confidence as preparation for the board exam.

**SOP 3. Is there a significant relationship between the level of practice and the extent of readiness of Education Graduates to take the Licensure Examination for Teachers?**

**Table 10. Pearson-r Correlation: Comparison of the significant relationship between the level of practices and extent of readiness of Education Graduates in taking the Licensure Examination for Teachers.**

Level of Practices Graduates	Level of Readiness Of Education Graduates	Correlation coefficient	Interpretation	p-value	Decision	Remarks
before taking LET	Content Knowledge (GenEd Subjects)	0.189	Negligible correlation	0.081	Failed to Reject	With Significant Relationship
Review	Content Knowledge (ProfEd Subjects)	0.386	Low Positive Correlation	<0.001	Reject Ho	With Significant Relationship
Trainings and Seminars	Financial Capability	0.408	Low Positive Correlation	<0.001	Reject Ho	With Significant Relationship
Review	Financial Capability	0.231	Low Positive Correlation	<0.001	Reject Ho	With Significant Relationship
Trainings and Seminars	Content Knowledge (GenEd Subjects)	0.432	Low Positive Correlation	<0.001	Reject Ho	With Significant Relationship
<hr/>						
	Content Knowledge (ProfEd Subjects)	0.525	Moderate Positive Correlation	<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 the p-value is less than or equal to (0.05), reject Ho, otherwise Failed to reject Ho*

Table 10 shows a Comparison of the significant relationship between the level of practice and the extent of readiness of Education Graduates to take the Licensure Examination for Teachers. The review and general education subject content knowledge has an r-value of **0.189**, which has a **negligible correlation**, with a **p-value of 0.081**, which is greater than  $\alpha=0.05$ , signifying to Failed to Reject Ho. Therefore, the variables have no significant relationship. Meanwhile, review and professional education subject content knowledge have an r-value of 0.386, which has a **low positive correlation**, and a p-value **<0.001**, which is less than the  $\alpha=0.05$  allowing to Reject Ho; therefore, the variables have a significant relationship. Moreover, the correlation of training and seminars has an r-value of **0.048**, which has a **low positive correlation**, with a p-value **<0.001**, which is less than the  $\alpha=0.05$  allowing to Reject Ho. Therefore, the variables have a significant relationship. Also, the review and financial

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capability of respondents have an r-value of 0.231, which has a **low positive correlation**, with a p-value <0.001, which is less than  $\alpha=0.05$ , allowing to Reject Ho. Therefore, the variables have a significant relationship.

The training and seminars and general education subject content knowledge has an r- value of **0.432**, which has a **low positive correlation**, and a p-value <0.001, which is less than the  $\alpha=0.05$  allowing to Reject Ho; therefore, the variables have a significant relationship. Lastly, the training and seminars and professional education subject content knowledge have an r- value of **0.525**, which has a **moderate positive correlation**, and a p-value <0.001, which is less than the  $\alpha=0.05$  allowing to Reject Ho; therefore, the variables have a significant relationship.

### CONCLUSIONS AND RECOMMENDATIONS

The state of being prepared to take the Licensure Examination is a result of well- intensified plans and practices that need to be elucidated and analyzed for the benefit of the students and examinees. The results of the study revealed that self-review is the most common practice done by the Graduates before taking the LET, allowing them to have a sidehustle or have a job while waiting for the examination day. However, only a few of the respondents can afford to enroll in review centers since they do not have enough resources to pay for them. Additionally, training and seminars are also pivotal for professional growth, which could be a source of content and pedagogical knowledge while waiting for the LET. Based on the results, they are actively engaged in seminars and trainings organized by the institutions they are affiliated with. On the contrary, the graduates do not engage in INSET training organized by DepEd, which is a good avenue for them to learn new skills and trends in the teaching- learning process. Also, the study discovered that the respondents have good content knowledge both in general and professional education courses, indicating that they are ready to take the LET in the soonest possible time. Their good content knowledge should be considered because this has an effect on their performance in the Licensure examination. Furthermore, graduates are resourceful in finding ways to pay the necessary fees for the requirements of taking LET. However, some still cannot afford to pay and enroll in a review center due to lack of financial capacity. The findings of the study can be synthesized as follows. It is evident that the majority of the graduates are working while waiting for the LET due to financial struggles. Further, the majority of respondents intended to take the LET as soon as possible. In preparation for the examination, most respondents reviewed at home rather than enrolling in a review center due to lack of financial sustainability. In terms of content knowledge, the graduates have attained good both in General and Professional Education subjects. The following recommendations are offered for related research in the field of students' and graduates' preparation for licensure examination. The practices for the licensure examination should be given priority by the institution, LGU, and other stakeholders to ensure the passing rate of the graduates in LET. Likewise, the quality of review given in the review centers should be assessed, and its effect on the examinee's performance in the licensure examination be investigated. Lastly, since Batch 2022 are the graduates of the new curriculum, an intensive and comprehensive curriculum review must be considered to assess the alignment of the courses to the expected quality of teachers in the DepEd.

### IMPLICATIONS / ACTION PLAN

#### Action Plan Examination for Teachers FREE LET REVIEW in Barangay

Description	Strategies/Activities	Persons Involved	Timeframe	Resources	Success Indicators	Monitoring and Evaluation Scheme
It is undeniable that LET Reviews from review centers contribute to a greater percentage of passing the LET. This free LET review can help students who do not have the financial capacity to enroll in any review centers but wish to have an intensive and well- structured review offered by review centers like CBRC.	<ol style="list-style-type: none"> <li>1. Conduct planning and meeting to PNC Administrator and LGU.</li> <li>2. Propose strategic plan for free LET Review.</li> <li>3. Benchmarking to 1 of the barangays.</li> <li>4. Monitoring and Evaluation</li> <li>5. Impact Assessment</li> </ol>	<ul style="list-style-type: none"> <li>• PNC Administrators</li> <li>• Linkages Department</li> <li>• LGU of City of Cabuyao</li> <li>• LGU – Barangay Level</li> </ul>	<p>August – September 2023</p> <p>2 Quarters per year</p>	<ul style="list-style-type: none"> <li>• Institutional Budget</li> <li>• LGU (Baray) Budget</li> </ul>	90% of the graduates will pass the LET	<ul style="list-style-type: none"> <li>• Tracking of participants' completion rates and progress in the program.</li> <li>• Regular assessments of participant s' content knowledge</li> <li>• Regular feedback And evaluation from participants, trainers, and stakeholders to improve the <u>program</u></li> <li>• Monitoring of participant s after taking the LET</li> </ul>



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## Availability of Physical Education, Sports and Health Facilities and Infrastructure in Junior High Schools of Rejang Lebong Regency, Bengkulu



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**ABSTRACT:** This study aims to determine the availability of physical education, sports and health facilities and infrastructure in public junior high schools throughout Rejang Lebong Regency in Bengkulu. This research is a survey research. The population in this study is all public junior high schools in Rejang Lebong Regency in Bengkulu in 2021, totaling 46 schools. The sample technique of this study with Purposive Sampling is 10 schools that can be reached by school distance, schools can be observed during a pandemic and organize PJOK learning. Data collection techniques through observation. This research instrument uses observation sheets. This research analysis technique uses frequency analysis in the form of percentages. The results of the study can be concluded that the available facilities are 31 types and there are 2 types that are not available, namely softball and softball bats. There is no availability of softballs and softball bats in all schools. Of the availability of these facilities, 97.93% are in good condition and 2.07% are in damaged condition. All facilities owned belong to the school. The tools available are 14 types and there are 4 types that are not yet available, namely jumping horses, single bars, parallel bars and multilevel bars. The unavailability of jumping horses, single bars, parallel bars and terraced bars occurred throughout the school. The availability of these tools has a good standard condition of 96.5%, a good condition of modification of 1.2% and a major damaged condition of 2.3%. Of all the tools available are proprietary. The facilities available are 7 types and there are 4 types that are not yet available in schools. The existing facilities are in good condition by 97.93% and 2.07% are in damaged condition. All facilities available are the property of the school.

**KEYWORDS:** Facilities, Infrastructure, Physical Education, Students.

### I. INTRODUCTION

Education is a process or activity in providing changes in attitude, character and knowledge to students to change for the better [1]. The education process today in Indonesia has improved and is more programmed [2]. In Law No. 20 of 2003 concerning the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and State [3]. According to [4] states that physical education is a vehicle for educating children. Experts agree that physical education is a tool to nurture young people so that later they are able to make the best decisions about physical activities carried out and live a healthy lifestyle throughout their lives.

Education can be broadly interpreted as the process of learning from the unknowing to the knowing through the guidance of a teacher. For learning from elementary school to high school there is a type of learning that is useful in training the physical to grow healthy, the learning is in the form of physical education [5]. Physical education is a process of interaction between students and the environment, through physical activities that are arranged systematically to lead to a whole Indonesian person, Armed with physical education theory, learning models, and learning charts, physical education teachers determine methods and learning materials to implement and apply learning [6].

In the teaching and learning process of physical education and health, in order to achieve the expected goals, of course, physical education and health teachers are required to be able to form a harmonious atmosphere in carrying out education, responsive to changes due to the impact of advances in science and technology and creatively create something that has relevance to

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educational efforts, including determining learning variations, so that their students will always receive lessons with pleasure [7]. The advantage of physical activity in general is that it improves physical and psychological health for all human beings, both men and women of all ages. Lack of movement (inactivity) is a risk factor for coronary heart disease [8].

Experts agree that physical education is a tool to nurture young people so that later they are able to make the best decisions about physical activities carried out and live a healthy lifestyle throughout their lives. From the various descriptions above, it can be concluded that physical education is an integral part of an educational education that uses direct practice with physical activities as the main medium to improve and develop physical abilities from all aspects, so that the goals of physical education can be achieved as a whole. Activities carried out in physical education learning are carried out using a learning approach in the original sports.

Interestingly, physical education cannot be delivered optimally without the support of good facilities and infrastructure. Sports facilities and infrastructure are very important in the implementation of physical education learning. This is because not all schools have adequate facilities and infrastructure so that they require maximum improvement of facilities [9]. The availability of physical education learning facilities and infrastructure is one of the benchmarks for the quality of education implemented by schools. The better the availability of facilities and infrastructure, the better the physical education learning process provided [10]. Conversely, the less available facilities and infrastructure, the lower the implementation of the physical education learning process. The success of the physical education learning process can at least be influenced by the availability of adequate facilities and infrastructure. In addition, the process of student participation and activeness in participating in physical education learning is also influenced by student motivation.

Physical education in its implementation requires equipment and equipment that supports learning. Facilities and infrastructure are one of the elements supporting the success of physical education, considering that these subjects require many facilities and infrastructure used to support the achievement of effective learning [11]. In physical education learning in schools in order to succeed optimally is determined by several elements, including: teachers, students, physical education facilities and infrastructure, media, goals, methods, environment, and evaluation [12]. In line with this opinion, learning requires support from various aspects, one of which is learning facilities and infrastructure.

The management of facilities and infrastructure is very important because with the management of facilities and infrastructure educational institutions will be maintained and their usefulness is clear. In management, the school must be responsible for facilities and infrastructure, especially the principal who directly handles these facilities and infrastructure [13]. According to [14] states that means are everything that is used as a means in achieving an end or end. This must make the attention of all institutions or educational institutions. The existence of a process of fulfilling educational facilities and infrastructure will help to achieve educational goals.

In the last one year starting in early 2020 until now, the process and activities of education in general in Indonesia have undergone very rapid changes. The outbreak of the COVID-19 pandemic has affected the pattern of learning carried out by teachers to students. The availability of facilities and infrastructure in schools that are not necessarily the same and meet these standards also affects the learning process of physical education. The existence of this pandemic outbreak forces teachers to twist their minds and learning methods which of course require facilities and infrastructure for teachers to compile learning materials. Learning carried out at home also forces teachers to assist students in fulfilling the facilities and infrastructure needed by using the tools owned by the school.

Physical education is carried out at every level of educational institutions with various types of facilities and infrastructure. [15] stated that there are several needs in physical education learning from elementary school to college, including:

**Table 1. Physical Education Learning Facilities and Infrastructure Needs**

Types of Sports	Sarana dan Prasarana
Game	Football, volleyball, basketball, handball, sepak takraw, basketball, baseball, rounders, kippers, slagball, softball, badminton, table tennis, court tennis
Athletics	Walk, run, jump, throw
Gymnastics	Basic gymnastics, Agility gymnastics, Rhythm gymnastics, Aerobic gymnastics
Martial arts	martial arts, taekwondo, karate, judo
Swimming pool	freestyle, breaststroke, backstroke, butterfly style
Outdoor Sports	Hiking/ Traveling, Mountainering, Camping, Cross country

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Based on observations at SMP Negeri se Kabupaten Rejang Lebong in Bengkulu, it shows that the school does not yet have a sports field and the availability of sports equipment that does not meet learning standards. This situation will certainly affect the implementation of physical education learning in public junior high schools throughout Rejang Lebong Regency in Bengkulu. The outbreak of the COVID-19 pandemic has added to the difficulty of the physical education learning process. The existence of online learning with limited facilities and infrastructure owned by schools and students will affect student learning motivation.

### **II. MATERIAL AND METHOD**

The research used in this study is survey research. Descriptive research aims to describe what is currently applicable. It contains an attempt to describe, record, analyze, and interpret conditions that currently occur or exist. Broadly speaking, this research is quantitative descriptive survey research. This study aims to determine the availability of physical education facilities and infrastructure in SMP Negeri se-Rejang Lebong in Bengkulu Province. The availability referred to in this case is seen from several aspects, namely: type, quantity, condition, and ownership status. In the discussion, availability is measured by adding up (1) facilities available in all schools, (2) infrastructure (tools) available in all schools, (3) infrastructure (facilities) available in all schools. Data is presented in the form of aggregate amounts and percentages (%) which include condition (good standard, good modification, or damaged) and ownership status (owned, borrowed, rented). The step in collecting data is to visit each school according to the research implementation plan. In each school, researchers directly record the availability of available physical education facilities and infrastructure. In this data collection, researchers are accompanied by sports teachers to assist in data filling activities so that the results obtained are more valid. The analysis used is descriptive quantitative by classifying the types of data obtained from observation sheets and grouped. Data analysis used using descriptive statistics is statistics that have the task of organizing and analyzing numerical data, in order to provide an orderly, concise, and clear picture, about a symptom, event or condition, so that a certain understanding or meaning can be drawn.

### **III. RESULT AND DISCUSSION**

Based on the results of research on the availability of physical education, sports and health facilities and infrastructure in SMP Negeri se Rejang Lebong Regency in Bengkulu, the following results were obtained.

#### **1. Availability of Physical Education, Sports and Health Facilities in Public Junior High School in Rejang Lebong Regency in Bengkulu**

Physical education, sports and health facilities available at SMP Negeri se Kabupaten SMP Negeri se Kabupaten Rejang Lebong in Bengkulu which consists of 33 types of facilities are obtained 31 types of facilities available at SMP Negeri se Kabupaten Rejang Lebong in Bengkulu. While 2 types of facilities that are not alone in the State Junior High School in Rejang Lebong Regency in Bengkulu are in the form of softball balls and softball bats. This situation shows that softball is not yet available at SMP Negeri se Kabupaten Rejang Lebong in Bengkulu. However, there are many other facilities that are not yet available in some schools. Facilities that are not yet available less than 50% of the total schools are handball games, tennis rackets, iron stakes, high jump bars, small flags, maces, gymnastics sticks, gymnastics jumping ropes and chest numbers. Based on the overall obtained existing needs. This situation shows that the existence and availability of physical education, sports and health facilities in SMP Negeri se Rejang Lebong Regency in Bengkulu still need to be improved to support the process of teaching and learning activities.

The availability of facilities and infrastructure that not all schools have, the school has made several modifications. In line with the opinion [11] stated several examples in modifying physical education facilities and infrastructure, including for tools if there is no high jump tub or long jump tub or less number, it can be tricked with a mattress or artificial mattress. In line with this opinion, there is a modification of the long jump tub in the Rejang Lebong Regency Public Junior High School in Bengkulu.

The availability of physical education, sports and health facilities in SMP Negeri se Rejang Lebong Regency in Bengkulu which is owned by 31 types of facilities, there are 1626 facilities. However, the condition of the facility is 100% a facility with standard quality. The condition of the facilities is that there are 1584 tools or 97.93% in good condition and 42 tools or 2.07% in damaged condition. This situation shows that the facilities that have been owned can be almost entirely used or in good condition.

Facilities and infrastructure in physical education learning must be maintained properly and correctly according to the type of material and type of manufacture so that it can be used properly and durably [8]. The condition of this good facility will greatly support the continuity of the teaching and learning process of physical education, sports and health in SMP Negeri se Rejang Lebong Regency in Bengkulu. The support of educational facilities that are almost all available can be said to be very useful for the continuity of learning. Alat-Sports equipment usually cannot last for a long time, the equipment will be damaged if often used in physical education learning activities, so that the equipment can last a long time must be maintained properly [7].

## **Availability of Physical Education, Sports and Health Facilities and Infrastructure in Junior High Schools of Rejang Lebong Regency, Bengkulu**

The learning process of physical education, sports and health is very dependent on the ownership of supporting facilities. The availability of facilities from 31 types of facilities is 100% owned by schools in SMP Negeri se Rejang Lebong Regency in Bengkulu. This situation shows that the ownership of these facilities the school can already fulfill it independently. Although the availability is not yet maximized. There needs to be improvements in order to fulfill physical education, sports and health facilities in public junior high schools in Rejang Lebong Regency in Bengkulu. Facilities are very important considering that physical education, sports and health teaching and learning activities require safe and comfortable facilities so that their fulfillment must be prioritized.

### **2. Availability of Physical Education, Sports and Health Infrastructure in Public Junior High School in Rejang Lebong Regency in Bengkulu**

The availability of infrastructure is divided into two types, namely tools and supporting facilities for learning activities. The existence of tool infrastructure from 18 types of tools that are expected to be available at SMP Negeri in Rejang Lebong Regency in Bengkulu can only provide 14 types of tools. Tools that could not yet be available were saddle horses, single mangers, parallel bars and multilevel bars. This situation shows that this type of tool cannot be available in all public junior high schools in Rejang Lebong Regency in Bengkulu. Of the 14 types of tools available, there are tools that are not widely owned by public junior high schools in Rejang Lebong Regency in Bengkulu, namely high jump poles, jumping chests, jumping horses and balance beams. Overall, physical education, sports and health infrastructure tools in SMP Negeri se Rejang Lebong Regency in Bengkulu are only available by 50%. It can be said that this tool is still not available properly in public junior high schools in Rejang Lebong Regency in Bengkulu. The availability of infrastructure that not all schools have, the school has made several modifications. In line with the opinion [4] states that for facilities if not available it is very difficult to modify. However, if it is available even though it is not qualified, then the teacher can modify it according to the teacher's creativity and student needs. There are also football game learning facilities where two fields that have non-standard sizes are used as football learning facilities. In addition, there is still the use of the school yard as an arena for physical education learning activities. The condition of the availability of physical education, sports and health learning equipment infrastructure at the State Junior High School in Rejang Lebong Regency in Bengkulu is almost entirely in good condition. In detail, there are 96.5% of tools in good condition with standard quality, there are 1.2% of tools in good condition with modified quality, namely in the form of long jump benchmark beams and there are 2.3% of damaged tools. The availability of this new 50% tool is almost entirely usable. All available tools are all owned by public junior high schools in Rejang Lebong Regency in Bengkulu. This situation shows that the ownership status of the tools is entirely owned by schools in SMP Negeri se Rejang Lebong Regency in Bengkulu.

The state of the facilities in SMP Negeri se Kabupaten Rejang Lebong in Bengkulu explained that of the 11 facilities expected to exist, schools in SMP Negeri se Kabupaten Rejang Lebong in Bengkulu only have 7 types of facilities. However, this situation is only 34.5% of schools that have among the 7 types of facilities. Facilities owned by all schools are basketball courts, volleyball courts and school yards or sports venues. While the minimal facilities owned by schools in SMP Negeri se Rejang Lebong Regency in Bengkulu are football fields there are 2 schools, badminton courts there are 2 schools, gymnastics halls there are 2 schools, jumping tubs there are 2 schools. Facilities that are not yet owned by all schools are softball fields, running tracks, tennis courts and swimming pools. The results of the study showed that ownership of facilities was still minimal and lacking in public junior high schools in Rejang Lebong Regency in Bengkulu. This situation shows that the existence of facilities still needs to be developed behind the limitations of schools.

From the ownership of the above facilities, it can be detailed that there are 83.1% standard facilities in good condition, 15.5% large modification facilities in good condition and 1.4% damaged facilities in the form of volleyball courts. The facilities that are owned almost entirely in good condition show that the facilities can be used optimally to reduce the limitations of existing facilities in public junior high schools in Rejang Lebong Regency in Bengkulu.

## **IV. SIMPULAN**

Based on the results of research and discussion, it can be concluded that the availability of physical education, sports and health facilities and infrastructure in State Junior High School in Rejang Lebong Regency in Bengkulu, which consists of 10 schools, is 31 types available, and there are 2 types that are not available, namely softball and softball bats. There is no availability of softballs and softball bats in all schools. Of the availability of these facilities, 97.93% are in good condition and 2.07% are in damaged condition. All facilities owned belong to the school. The tools available are 14 types and there are 4 types that are not yet available, namely jumping horses, single bars, parallel bars and multilevel bars. The unavailability of jumping horses, single bars, parallel bars and terraced bars occurred throughout the school. The availability of these tools has a good standard condition of 96.5%, a good condition of modification of 1.2% and a major damaged condition of 2.3%. All available tools belong to the school. The



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facilities available are 7 types and there are 4 types that are not yet available in schools. Facilities that are not yet available are tennis courts, softball fields, running tracks and swimming pools. The existing facilities are in good condition by 97.93% and 2.07% are in damaged condition. All facilities available are the property of the school.

### ACKNOWLEDGEMENTS

The author would like to express his deepest gratitude to all students who have been willing to complete this research. It's a journey of growth, discovery, and collaboration, and it wouldn't have been possible without the support, guidance, and contributions of many individuals and entities. As a big expression of gratitude, I express my appreciation to those who have played an important role in making this effort a reality.

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## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam



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**ABSTRACT:** Education is given special attention by the Vietnamese government. People from all socio-economic classes are given opportunities to participate in learning. However, due to differences in natural, economic and social conditions, educational inequality between urban and rural areas still exists. This research is based on the Household Living Standards Survey Report, Statistical Yearbook, Labor and Employment Survey Report, Population Change and Family Planning Survey Report, and other official reports of General Statistics Office of Vietnam. Analysis results show that there is still inequality in opportunities to access and complete education, in spending on education and getting high-income jobs post education between urban and rural areas. Based on these analysis results, this article proposes some solutions to reduce educational inequality between urban and rural regions in Vietnam.

**KEYWORDS:** inequality, education, inequality in education, urban, rural

### 1. INTRODUCTION

Education has a positive impact on economic growth as well as hunger eradication and poverty reduction. People with high levels of education have better job opportunities and higher income than others. Equality in education gives people from any socio-economic classes the opportunity to develop and build a stable and sustainable development society.

Vietnam's Education Law of 2019 states: Learning is the rights and obligations of every citizen. All citizens, regardless of ethnicity, religion, beliefs, gender, personal characteristics, family origin, social status, or economic situation, are equal in educational opportunities. The Government implements educational equality. The Government prioritizes and assists learners who are children in extraordinary circumstances according to provisions of the Children's Law, learners with disabilities according to the Disabilities People's Law.

However, there are still differences in income, number of educational establishments, physical conditions, educational human resources, etc between urban and rural areas. This leads to inequalities in organized learning and educational benefits. To reduce educational inequality between urban and rural areas, especially at the high school level, we need specific solutions.

### 2. THEORETICAL BASIS

#### Inequality

According to sociologists, "Inequality is the disparity of opportunities or benefits for different individuals in a social group or in many social groups."

Inequality can be divided into two groups:

- Natural inequality: created by natural differences between individuals in one or several characteristics such as: gender, race, physical strength, mental ability,...
- Social inequality: created by the division of labor leading to social stratification (dividing society into different social classes in terms of political status, economic status, and social status), creating different benefits among individuals.

Émile Durkheim (famous French sociologist, who laid the foundation for functionalism and structuralism, and who contributed greatly to the formation of the disciplines of Sociology and Anthropology) in his work "Division of Labor in Society" (1893), argued that all societies consider some actions more important than others and that inequality involves differences in individual talents, the number of people who have more natural talent than others, and, through training, the differences will increase which leads to inequality in society.

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Thus, according to Durkheim, education and training can increase or reduce inequality in society.

### Education

The concept of education in Vietnam has not been defined in legal documents. There are many different concepts of education based on many different research approaches. But they all have something in common: Education is understood as the transmission of knowledge and skills from one generation to the next through teaching, training, and research.

Vietnam's Education Law of 2019 states: The goals of education are to comprehensively develop Vietnamese people to have ethics, knowledge, culture, health, aesthetics and professional skills; to have merits and civic awareness; to have patriotism, national spirit, ... and to promote the potential and creativity of each individual; to improve people's knowledge, develop human resources, foster talents and meet the requirements in the cause of building and protecting the Fatherland and international integration.

Education levels and training levels of the national education system include:

- a) Preschool education includes kindergarten education;
- b) General education includes primary education, lower Secondary education and upper Secondary education;
- c) Vocational education training at primary level, intermediate level, college level and other vocational training programs;
- d) Higher education provides training at university level, master's level and doctoral level.

In particular, primary education is compulsory education, lower secondary education is universal education, and upper secondary education is career-oriented education.

### Inequalities in Education

From the concept of inequality and education, it can be understood that "Educational inequality is the disparity between individuals and groups of people in terms of opportunities to participate in education and benefits from education".

Educational inequality can be specified in several aspects: unfairness in ensuring opportunities to participate in education, ensuring learning rights and employment opportunities according to educational level.

Firstly, inequality of opportunities to participate in education and educational outcomes entail: inequality in opportunities to go to school for all individuals and groups in society, inequality in conditions and environment of learning, facilities, qualifications and degrees achieved.

Secondly, inequality in the benefits of education through employment opportunities and high income opportunities according to training level include, but not limited to: opportunity to use qualifications, to find jobs suitable with training level, to get higher income,...

### Urban-rural areas

According to Decision No. 82-CP dated April 13, 1974 promulgating regulations on urban delineation standards, urban and rural areas can be divided according to the following urban definition criteria:

- (1) Urban is the political, economic and cultural center of the whole country, of an administrative unit at the regional, provincial, district or regional level.
- (2). Urban areas are places where non-agricultural population is concentrated and many industries have been developed or will be developed in the future.
- (3). If an urban area is a district town, it must have approximately 1,000 inhabitants or more; If it is a concentrated area of industry, handicrafts, and commerce, approximately 2,000 people or more must be permanently residing, of which 50% or more are non-agricultural workers, with urban living conditions (conditions: activities: electricity, water, transportation... at the urban level).
- (4) Residential areas identified as urban include:
  - Cities, towns and townships have been recognized by the Government.
  - Residential areas operating in an urban style: Residential areas that do not have a State document approved as a city, town or town but have a concentrated population belonging to industrial enterprises and construction sites. Basic construction, agriculture, forestry, agencies, hospitals, schools or other economic activity areas with a population of 2000 or more, permanent residents, of which 50% or more are non-agricultural workers industrial and have an urban style of living, are also defined as urban areas.

The concept of rural area is specified as follows: "Rural area is an administrative boundary area that does not include wards of towns, districts and cities."

Thus, it can be understood that, in contrast to urban areas in terms of facilities and infrastructure, rural areas are underdeveloped areas, with people mainly making a living from agriculture, and most of them are not equipped with opportunities and potential capacity to develop large industries.

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### Indicators reflecting inequality in education

Indicators reflecting opportunities to participate in education and training results include: net attendance rate, completion rate, average number of years of schooling and expected number of years of schooling, spending on education and training average of 1 person attending school for 12 months, spending on education and training average of 1 person attending school for 12 months divided by expenditures, literacy rate of population aged 15 and over, proportion of population aged 15 years and older divided by educational level, proportion of population 15 years old and older divided by technical and professional level.

Indicators reflecting benefits from education through employment opportunities and income according to training level include: structure of employed workers aged 15 and above divided by technical and professional level, the occupational structure of employed workers from 15 years of age and above, structure of employed workers aged 15 years and above divided by employment status, unemployment rate of workers in working age, unemployment rate in working age labor by educational level, underemployment rate of working-age workers, average monthly income per capita, average monthly income of salaried workers aged 15 and above according to technical qualifications.

### 3. RESEARCH METHODS

*Analytical data source:* The article uses data from the Statistical Yearbook published annually, the results of the Vietnam Living Standards Survey conducted every two years, and the Labor and Employment Survey Report 1/7 Annually, Report on the results of the population change and family planning survey on April 1 annually, and the official results announced by the General Statistics Office. The article uses indicators that reflect opportunities to participate in education, educational outcomes, employment opportunities and income of trained workers.

*Scope of research:* urban-rural Vietnam in the period 2012-2022.

*Analysis method:* Compare differences (relative or absolute) in indicators reflecting educational opportunities and benefits between urban and rural areas in Vietnam over time.

### 4. RESEARCH RESULTS

#### 4.1 Current status of educational inequality between urban and rural areas in Vietnam

##### 4.1.1 Opportunities to participate in education and results

The opportunity for Vietnamese rural children to go to high school has gradually increased over time and gradually reduced the gap between urban and rural areas. However, the dropout rate in rural areas is much higher than in urban areas, and the average number of years of schooling for people in urban areas is higher than in rural areas. Urban people also invest more in education than rural people.

**Table 1. Net attendance rate by residence in the period 2012-2022**

Unit: %

	Year 2012	Year 2014	Year 2016	Year 2018	Year 2020	Year 2022	Year 2022- Year 2020
<b>Primary</b>	92,4	93,0	97,0	97,3	98,1	95,8	-2,3
Urban	92,6	93,6	97,6	97,6	98,0	95,6	-2,4
Rural	92,4	92,8	96,8	97,1	98,1	95,9	-2,2
<b>Urban-Rural</b>	<b>0,2</b>	<b>0,8</b>	<b>0,8</b>	<b>0,5</b>	<b>-0,1</b>	<b>-0,3</b>	<b>-0,2</b>
<b>Lower secondary</b>	81,4	84,4	90,4	92,1	93,4	90,5	-2,9
Urban	85,0	88,9	93,9	93,9	94,9	91,4	-3,5
Rural	80,1	82,7	89,0	91,3	92,6	89,9	-2,7
<b>Urban-Rural</b>	<b>4,9</b>	<b>6,2</b>	<b>4,9</b>	<b>2,6</b>	<b>2,3</b>	<b>1,5</b>	<b>-0,8</b>
<b>Upper secondary</b>	59,4	63,1	68,6	72,0	76,1	77,2	1,1
Urban	70,2	73,2	79,6	82,4	82,2	82,4	0,2
Rural	55,6	59,3	64,5	67,7	72,9	74,1	1,2
<b>Urban-Rural</b>	<b>14,6</b>	<b>13,9</b>	<b>15,1</b>	<b>14,7</b>	<b>9,3</b>	<b>8,3</b>	<b>-1</b>

**Source:** Results of the population living standards survey by the General Statistics Office in 2018, 2020, 2022

Net attendance rate at primary school level is quite high nationwide and there is not much difference between urban and rural areas. It increased throughout the period 2012-2020, from 92.6% to 98.0% in urban areas, from 92.4% to 98.1% in rural areas. It decreased 2.4% (in urban), 3.2% (in rural) in 2022 compared to 2020 due to the impact of Covid-19.

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Similarly, the net attendance rate at lower secondary schools increased throughout the period 2012-2020, from 85.0% to 94.9% in urban areas, and from 80.1% to 92.6% in rural areas. It decreased 3.5% (in urban), 2.7% (in rural) in 2022 compared to 2020 due to the impact of Covid-19. The gap in lower secondary net attendance rate between urban and rural areas gradually decreases from 4.9% in 2012 to 1.5% in 2022.

Upper secondary schools' net attendance rate increased throughout the period 2012-2022 with the growth rate in rural areas being higher than the growth rate in urban areas, reducing the gap between rural and urban areas over time. The upper secondary net attendance rate in urban areas increased from 70.2% (in 2012) to 82.4% (in 2022), from 55.6% (in 2012) to 74.1% (in 2022). There hasn't been a clear impact of covid-19 on the upper secondary schools net attendance rate as it has with primary and lower secondary schools net attendance rate. The gap between urban and rural areas gradually decreases from 14.6% in 2012 to 8.3% in 2022.

**Table 2. School completion rate by residence**

Unit: %

	Primary	Lower secondary	Upper secondary
<b>Country</b>	98.3	86.8	58.1
Urban	98.4	90.7	74.8
Rural	98.3	84.5	46.4
<b>Urban-Rural</b>	<b>0.1</b>	<b>6.2</b>	<b>28.4</b>

Source: UNICEF Vietnam Education Summary Report in 2022

Children in rural areas have fewer opportunities to access education than those from urban areas. Additionally, school dropouts in rural areas happen more often than in urban areas, especially at the upper secondary education level.

School completion rates decrease as education levels increase, and the gap between urban and rural areas increase as education levels increase. According to UNICEF Vietnam Education Summary Report in 2022, overall, 98.3% of children complete primary school, 86.8% complete lower secondary school and 58.1% complete upper secondary school. These rates in urban areas were 98.4%, 90.7%, 74.8%, and in rural areas were 98.3%, 84.5%, 46.4%. The gaps between urban and rural were 0.1%, 6.2%, 28.4%.

**Table 3. Average number of years of schooling and expected number of years of schooling by residence**

Unit: Year

	Country	Urban	Rural	Urban-Rural
Average years of schooling	9,0	10,9	8,1	2,8
Expected years of schooling	12,2	13,6	11,4	2,2

Source: Results of the population and housing census in 2019

The differential in average year of schooling and expected years of schooling is also observed between rural and urban areas. The average number of years of schooling in urban areas was 10.9 years, and in rural areas was 8.1 years, with the difference being 2.8 years. The expected number of years of schooling in urban areas is 13.6 years, and in rural areas was 11.4 years, with the difference being 2.2 years.

**Table 4. Out-of-school rate by educational level and residence**

Unit: %

	Primary	Lower secondary	Upper secondary
<b>Country</b>	1	5	22
Urban	1	4	13
Rural	1	6	25
<b>Urban-Rural</b>	<b>0</b>	<b>-2</b>	<b>-8</b>

Source: UNICEF Vietnam Education Summary Report in 2022

The higher the education level, the higher out-of-school rate. According to UNICEF Vietnam Education Summary Report in 2022, 1% of primary school-age children did not go to school. This rate in lower secondary schools was 5%, and in upper secondary schools was 22%. At primary education level, there is almost no difference between urban and rural areas. The out-of-school rate in rural areas was higher than in urban areas at lower and upper secondary education levels. At lower secondary level, this rate was 6% in rural, 4% in urban, the difference being 2%. At upper secondary level, this rate was 25% in rural, 13% in urban, the difference being 8%.

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

**Table 5. Average spending on education and training per person attending school in 12 months by residence in the period 2012-2022**

Unit:1000 VNĐ

	Year 2012	Year 2014	Year 2016	Year 2018	Year 2020	Year 2022
<b>Country</b>	<b>4082</b>	<b>4557</b>	<b>5459</b>	<b>6623</b>	<b>7071</b>	<b>7001,5</b>
Urban	6352	6920	9096	10826	10719	10111,6
Rural	3091	3450	3737	4487	4955	5079,0
<b>Urban-Rural</b>	<b>2,1</b>	<b>2,0</b>	<b>2,4</b>	<b>2,4</b>	<b>2,2</b>	<b>2,0</b>

*Source: Household living standards survey by the General Statistics Office in the period 2012-2022*

Average spending on education and training per person attending school in 12 months in urban areas was 2 to 2.4 times higher than in rural areas during the period 2012-2022. In 2022, the average spending on education and training per person going to school for 12 months in urban areas was 10111.6 thousand VND, and in rural areas was 5079.0 thousand VND.

**Table 6. Average expenditure on education and training per person attending school in 12 months by expenditure and residence in 2022**

Expenditure (thousand VND)	Country	Urban	Rural	Urban/Rural
1. Tuition, out-of-district	2818.9	4348.0	1873.8	2.3
2. School and class contributions	557.7	736.7	447.0	1.6
3. Clothes & uniforms	361.3	445.0	309.5	1.4
4. Textbooks	436.2	464.1	418.9	1.1
5. Learning tools	318.1	356.4	294.4	1.2
6. Extra tuition costs	1159.4	1881.0	713.4	2.6
7. Other educational expenses	1350.0	1880.4	1022.1	1.8
Total	7001.5	10111.6	5079.0	2.0
Expenditure structure (%)	Country	Urban	Rural	Urban -Rural
1. Tuition, out-of-district	40.26	43.00	36.89	6.11
2. School and class contributions	7.97	7.29	8.80	-1.52
3. Clothes & uniforms	5.16	4.40	6.09	-1.69
4. Textbooks	6.23	4.59	8.25	-3.66
5. Learning tools	4.54	3.52	5.80	-2.27
6. Extra tuition costs	16.56	18.60	14.05	4.56
7. Other educational expenses	19.28	18.60	20.12	-1.53
Total	100	100	100	

*Source: 2022 Household Living Standards Survey of the General Statistics Office in 2022*

In spending on education, the expenditure that accounts for the largest proportion in both urban and rural areas is tuition and fees, followed by extra tuition and school supplies. In the 2021-2022 school year, spending on education in urban areas was 2 times higher than in rural areas, of which, out-of-district tuition was 2.3 times higher, and extra tuition costs 2.6 times higher. Meanwhile, the average income per capita per month in 2022 in urban areas is 1.54 times higher than in rural areas. It shows that urban people invest more in education than rural people.

There was a gap between urban and rural areas in admission, completion of schooling and investment in education, leading to lower levels of training, technical expertise and degrees achieved in rural areas compared to urban areas at upper secondary level and above.

**Table 7. Literacy rate of the population at 15 years of aged and above by residence in the period 2012-2022**

Unit: %

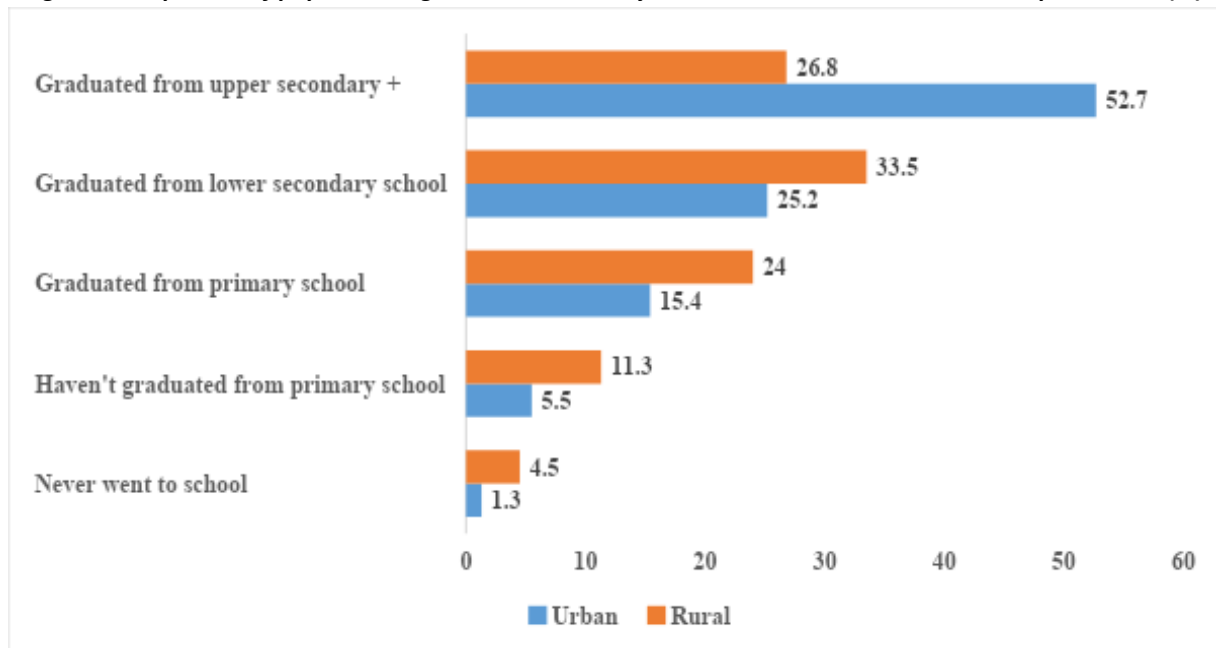
	Year 2012	Year 2014	Year 2016	Year 2018	Year 2020	Year 2022	Year 2022- Year 2012
<b>Country</b>	94.7	94.7	95	94.8	95.4	96.13	1.43
Urban	97.5	97.5	97.7	97.7	97.9	98.3	0.8
Rural	93.3	93.3	93.6	93.2	93.9	94.76	1.46
<b>Urban-Rural</b>	<b>4.2</b>	<b>4.2</b>	<b>4.1</b>	<b>4.5</b>	<b>4.0</b>	<b>3.54</b>	

*Source: Data published by the General Statistics Office*

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

Literacy rate of the population aged 15 and above increases gradually in the period 2012-2022 in both urban and rural areas. The literacy rate in urban areas has always been higher than in rural areas. In 2022, the literacy rate in urban areas was 98.3%, and in rural areas was 94.76%, with the difference being 3.54%.

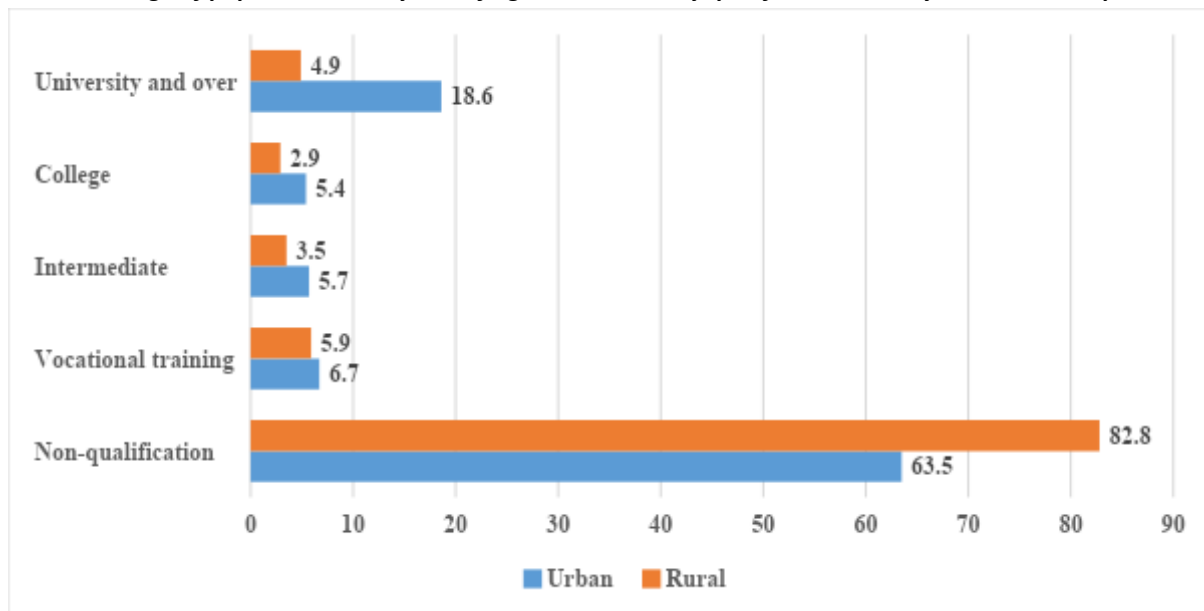
**Figure 1. Proportion of population aged 15 and above by education level and residence on April 1, 2021 (%)**



**Source:** Results of the population change and family planning survey of the General Statistics Office in 2021

The level of education in urban areas is much higher than in rural areas. In 2021, the population aged 15 and above in urban areas with an education level of high school graduation or higher accounts for 52.7% of the population, in rural areas accounts for 26.8% of the population, with the difference being 25.9%. The percentage of the population who has never done any schooling was 4.5% in rural areas, while being only 1.3% in urban areas.

**Figure 2. Percentage of population at 15 years of aged and above by qualification, and by residence on April 1, 2021 (%)**



**Source:** Results of the population change and family planning survey of the General Statistics Office in 2021

The level of technical expertise in urban areas is also higher than in rural areas at all levels of education, especially at university level and above. In 2021, the percentage of the population aged 15 and above in urban areas with vocational training was 6.7%, intermediate 5.7%, college 5.4%, and university and above 18.6%. This rate in rural areas was 5.95, 3.5%, 2.9%, 4.9% respectively. For university level and above, the difference between urban and rural areas was 13.7%.



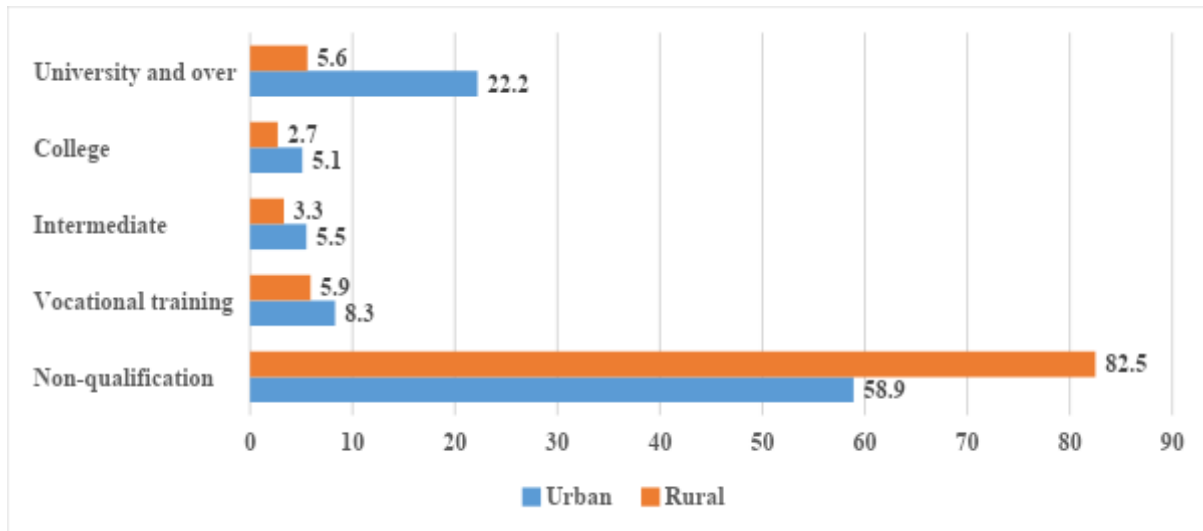
## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

### 4.1.2. Job and income opportunities

Due to the characteristics of rural workers being able to share agricultural work and traditional handicrafts, the opportunity to have a job in rural areas is higher than in urban areas, however, the number of underemployed workers in rural areas is higher than in urban areas. Compared to urban areas, the income of rural workers is lower than that of urban workers at all levels of education and technical expertise.

Jobs in urban areas require higher levels of technical expertise than in rural areas, corresponding to higher employment positions.

**Figure 3. Structure of employed workers aged 15 and above by qualification and by residence (%)**



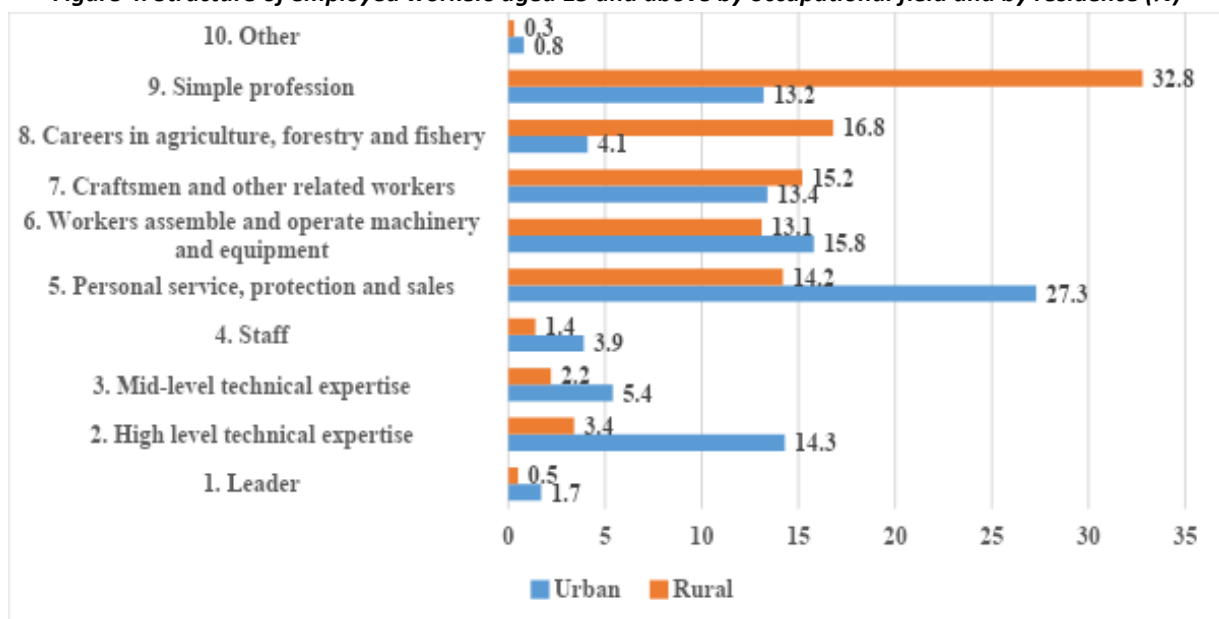
*Source: Labor and employment survey report of the General Statistics Office on April 1, 2021*

The proportion of employed workers in urban areas is higher than in rural areas in all trained groups, corresponding to higher job opportunities with technical and professional qualifications in urban areas than in rural areas.

According to the labor and employment survey report on April 1, 2021 of the General Statistics Office, the structure of employed workers aged 15 and above in urban areas with a university and over accounted for 22.2%, college 5.1%, intermediate 5.5%, primary 8.3%. Correspondingly, in rural areas these rates were 5.6%, 2.7%, 3.3%, 5.9%. The structure of workers with a university and over in urban areas was 16.6% higher than in rural areas.

The proportion of trained workers in rural areas was only 17.5%, and in urban areas it was 41.1%. The structure of employed workers non-qualification in rural areas was 23.6% higher than in urban areas.

**Figure 4. Structure of employed workers aged 15 and above by occupational field and by residence (%)**



*Source: Labor and employment survey report of the General Statistics Office on April 1, 2021*

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

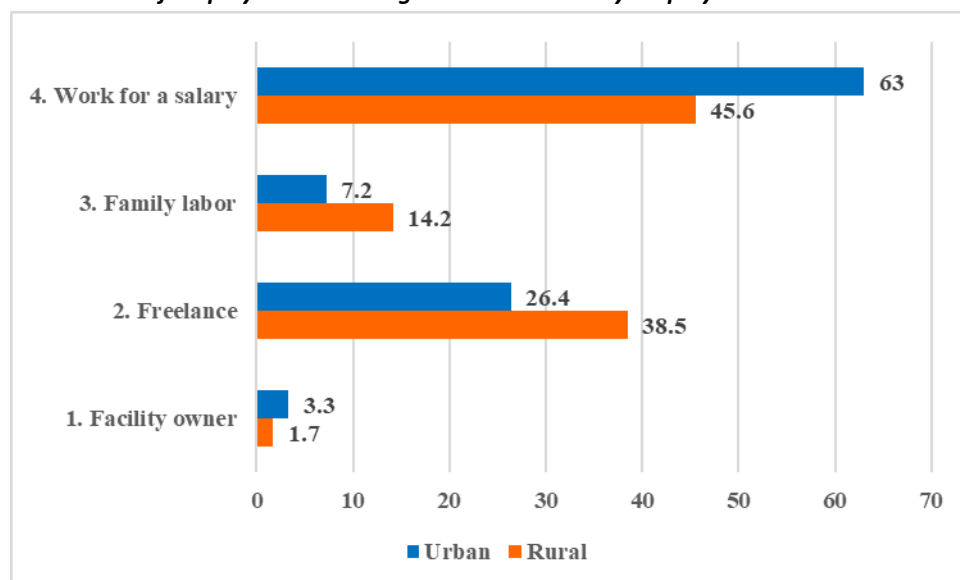
Urban employment requires a higher level of technical expertise than rural areas. In rural areas, workers in simple occupations account for the highest proportion (32.8%), followed by agriculture, forestry and fishery occupations (16.8%), craftsmen and other related workers (15, 2),... In urban areas, workers doing personal services, security and sales account for the highest proportion (27.3%), followed by workers assembling and operating machinery and equipment (15.8 %), high-level technical expertise (14.3%), ...

The structure of employed workers aged 15 and above in rural areas is higher than in urban areas in simple occupations, agriculture, forestry and fishery, craftsmen and other related workers; Urban areas are higher than rural areas in the group of leaders, high- and middle-level technical professionals, employees, personal services, security and sales, assemblers and operators of machinery and other occupations.

According to the Labor and employment survey report on April 1, 2021, the proportion of employed workers aged 15 and above doing simple jobs was highest in rural areas (32.8%), and 13.2% in urban areas, with the difference being 19.6%; the proportion of occupations in agriculture, forestry and fishery was 16.8% in rural areas and 4.1% in urban areas with a difference of 12.7%.

The proportion of employed workers aged 15 and above working as leaders was 1.7% in urban areas and 0.5% in rural areas, with a difference of 1.2%; The proportion of high-level technical expertise was 14.3% in urban areas and 3.4% in rural areas, with a difference of 10.9%; Middle-level technical expertise in urban areas was 5.4%, while in rural areas was 2.2%, the difference being 3.2%; Urban employees 3.9%, rural employees 1.4%, with a difference of 2.5%; personal services, security and sales in urban areas 27.3%, rural areas 14.2%, with a difference of 13.1%; 15.8% of workers assemble and operate machinery and equipment in urban areas, while only 13.1% do the same in rural areas, the difference being 2.7%.

**Figure 5. Structure of employed workers aged 15 and above by employment status and residence (%)**



**Source:** Labor and employment survey report of the General Statistics Office on April 1, 2021

The opportunity for high employment positions is higher in urban areas than in rural areas. The proportion of workers who own establishments and work for wages in urban areas is higher than in rural areas. The proportion of self-employed workers and family workers is higher in rural areas than in urban areas.

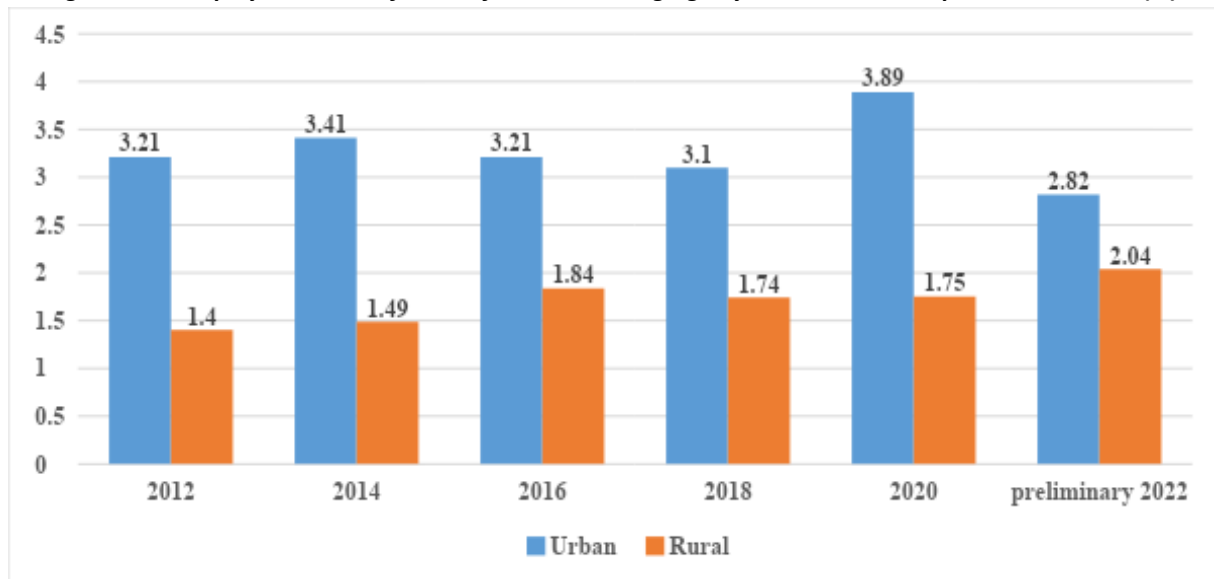
The proportion of employed workers aged 15 and above was 3.3% in urban areas, 1.7% in rural areas, a difference of 1.6%; 63% of workers in urban areas are salaried workers, while only 45.6% of workers in rural areas are so, with the difference being 17.4%.

The proportion of employed workers aged 15 and above who are self-employed in rural areas was 38.5%, in urban areas it was 26.4%, the difference being 12.1%; Proportion of family workers in rural areas was 14.2%, urban areas was 7.2%, a difference of 7%.

Wage workers account for the highest proportion of employed workers, followed by self-employed workers, family workers and facility owners.

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

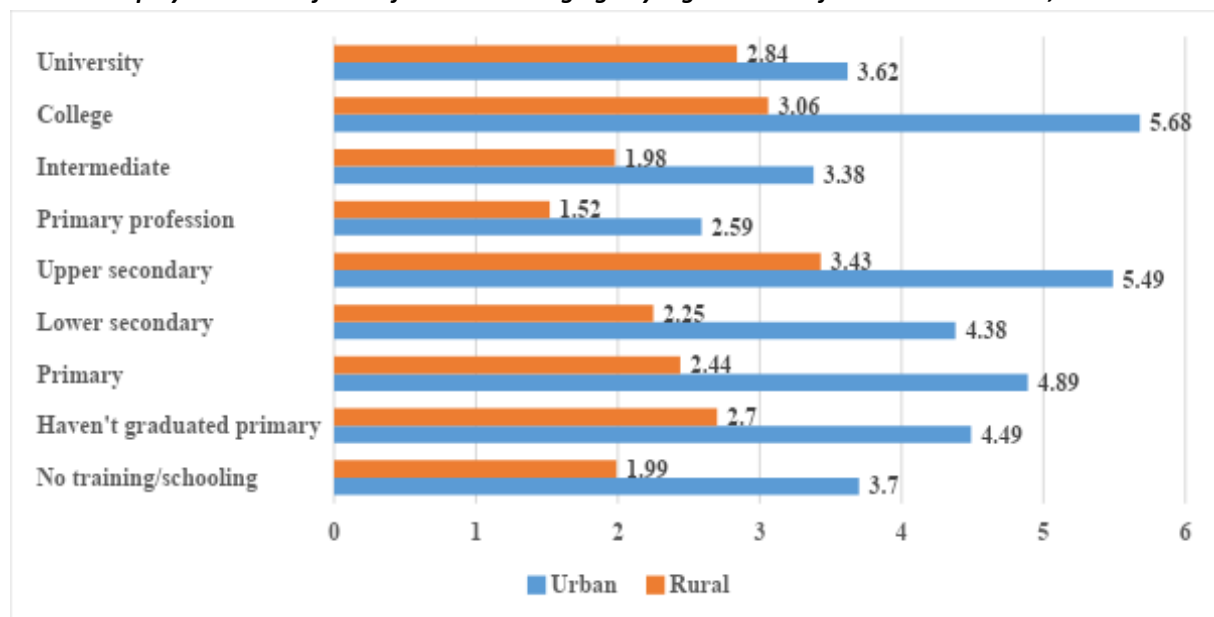
**Figure 6. Unemployment rate of labour force at working age by residence in the period 2012-2022 (%)**



*Source: Data published by the General Statistics Office*

The unemployment rate of urban workers is always higher than that of rural areas throughout the period 2012-2022. In 2022, the unemployment rate in urban areas was 2.82%, in rural areas it was 2.04%, a difference of 0.78%.

**Figure 7. Unemployment rate of labor force at working age by highest level of education achieved, and residence (%)**

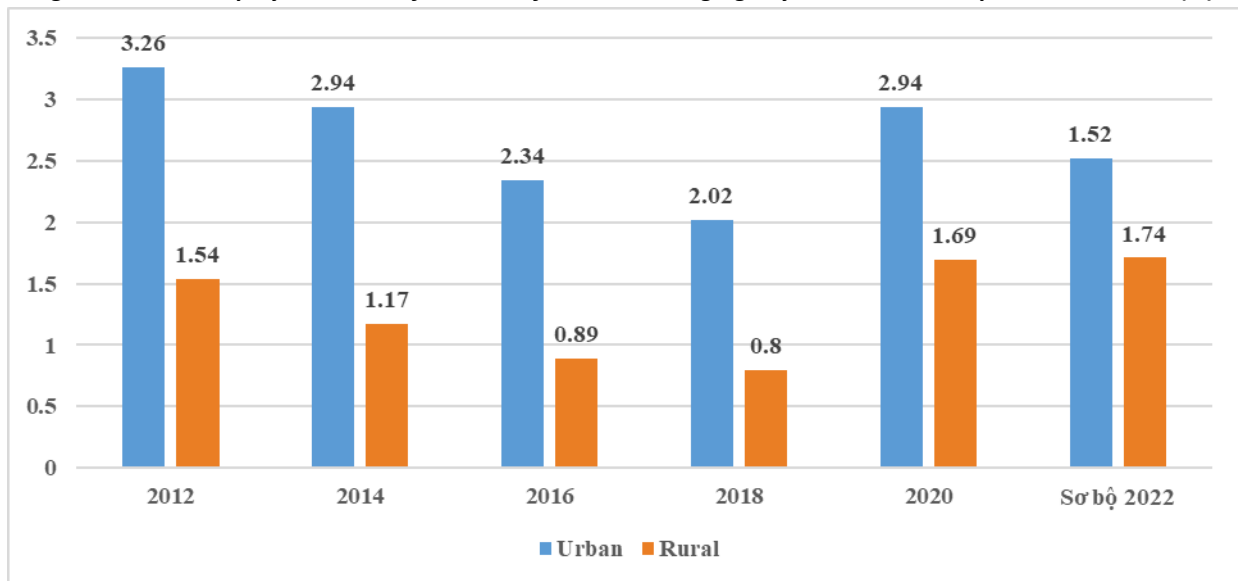


*Source: Labor and employment survey report of the General Statistics Office on April 1, 2021*

The unemployment rate of the labor force in working age in urban areas is higher than in rural areas at all levels of education. On April 1<sup>st</sup>, 2021, the difference was lowest at the university education level, the unemployment rate of the labor force in working age in urban areas was 3.62%, while in rural areas it was 2.84%, a difference of 0.78%.

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

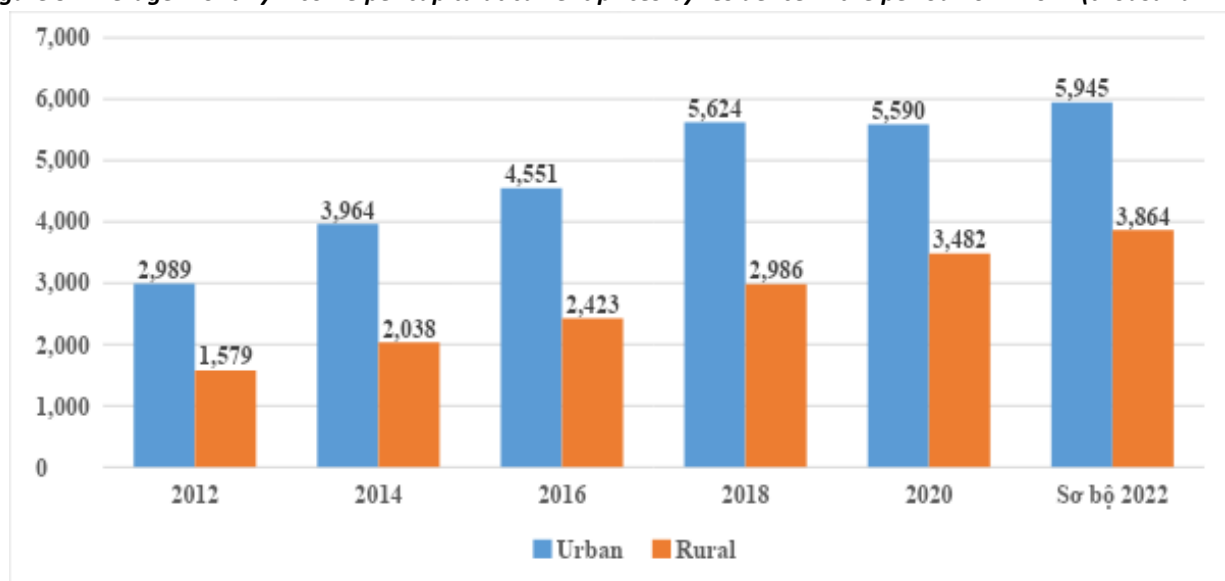
**Figure 8. Underemployment rate of the labor force in working age by residence in the period 2018-2021 (%)**



*Source: Data published by the General Statistics Office*

The underemployment rate of working-age workers in rural areas was higher than in urban areas during the period 2012-2022. In 2022, the underemployment rate of the labour force in working age in rural areas was 2.52%, while in urban areas it was 1.71%, a difference of 0.81%.

**Figure 9. Average monthly income per capita at current prices by residence in the period 2012-2022 (thousand VND)**

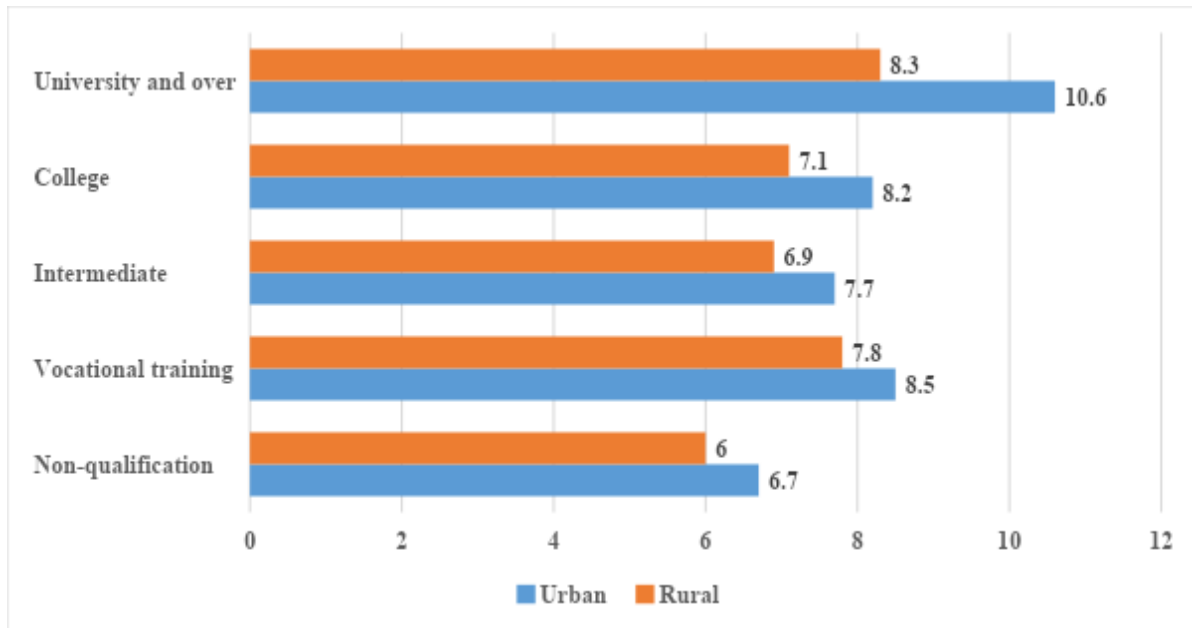


*Source: Data published by the General Statistics Office*

Income in urban areas was higher than in rural areas during the period 2012-2022. In 2022, the average monthly income per capita of urban areas was 5945 thousand VND, while in rural areas it was 3864 thousand VND, the average monthly income in urban areas was 1.5 times higher than that in rural areas.

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

Figure 10. Average monthly income of salaried workers aged 15 and above by qualification and by residence in the first quarter of 2021 (million VND)



Source: General Statistics Office

Income in urban areas is higher than in rural areas at all levels of education and technical expertise. University degree and above level has the highest income. The income gap between urban and rural areas is highest at the university and over level, then at the college, vocational training, intermediate, non-qualification.

The average monthly income of salaried workers aged 15 and above in the first quarter of 2021 in urban areas with university degrees was 10.6 million VND/month, in rural areas it was 8.3 million VND/month, a difference of 2.3 million VND/month; At college level in urban areas the income was 8.2 million VND/month, while in rural areas it was 7.1 million VND/month, the difference being 1.1 million VND/month; At intermediate level in urban areas the income was 7.7 million VND/month, and in rural areas it was 6.9 million VND/month, the difference being 0.8 million VND/month; At vocational training level the income was 8.5 million VND/month in urban areas and 7.8 million VND/month in rural areas, the difference being 0.7 million VND/month; the income of non-qualification in urban areas was 6.7 million VND/month, while in rural areas it was 6 million VND/month, a difference 0.7 million VND/month.

### 5. CONCLUSION AND RECOMMENDATIONS

From the situation of inequality in opportunities to access education, complete education, study costs, high-income job opportunities between urban and rural areas, and the current state of education in Vietnam and ongoing solutions, the topic outlines a number of specific solutions:

*Increase opportunities to access education and complete schooling, reduce learning costs for rural children.*

- Open more schools and classes, ensuring convenience for children to go to school. Build more boarding schools for areas without developed traffic.
- Strongly develop all types of distance education and training with low tuition fees.
- Develop a free Vietnamese language teaching program through television channels and information media, ensuring children of ethnic minority origin can access it.
- Develop free teaching programs on television channels and media networks, ensuring the ability to self-study. Organize assessment exams to award degrees and certificates for self-study students.

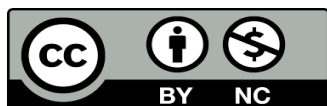
*Increase high-income job opportunities for rural workers*

- Apply advanced science and technology in farming and exploit products from agriculture, forestry and fishery.
- Encourage the development of large-scale, concentrated processing of agricultural, forestry and fishery products; Establish associations to ensure effective consumption of products from agriculture, forestry, fishery and traditional industries.
- Encourage new units and establishments to establish or expand donah production in rural areas.
- Develop work-at-home jobs via the internet to increase rural people's ability to access remote work in a number of suitable occupations.
- Transparency and public information of licensed units, ensuring workers can easily access job opportunities from legal units.

## Some Solutions to Reduce Educational Inequality between Urban and Rural In Vietnam

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## The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years



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**ABSTRACT:** In this study, the objectives are: (1) to determine the difference in the effect of zig-zag run and shuttle run training methods on speed and agility; (2) to determine the difference in the effect of low and high body mass index on speed and agility; (3) to determine the interaction effect of zig-zag run and shuttle training models with low and high body mass index on speed and agility in Klaten SSB U 13-14 players. This type of research is experimental research using 2x2 factorial. The population in this study were Klaten SSB players aged 13-14 years who were actively training with 35 people. The sample in this study obtained 20 players. The research instruments used in this study were the 30-meter run to measure speed and the Illinois agility test to measure agility. In this study, the analysis technique used two-way ANOVA. The results of this study indicate that (1) there was an influence on the difference in the speed and agility of the Zig-zag run and shuttle run methods in SSB players Klaten aged 13-14 with a value on the  $F_{\text{calculate}}$  speed of 5.528 and a sig. value of 0.032 whereas the value on  $F_{\text{calculate}}$  agility is 7.837 and the Sig.013 where the analysis revealed that the zig-zag run method was more effective in improving agility and Shuttle Run is more efficient in increasing speed. (2) there was a influence of the difference between the index of low body mass and high body mass there was speed and flexibility in the 14-14 years old SSB player Kleten with a rating on the speed of  $F_{\text{calculate}}$  is 5.490 and Sig. value is 0.032 while the value of the  $F_{\text{calculate}}$  agility was 5.448 and the sig. score is 0.033 where the results explained that lower BMT increases are more effective on agility than low speed, whereas higher IMT increase is more effectively on the velocity than the speed while increasing high BMT is more effective increasing to speed than agility. (3) There was no influence on the interaction between the exercise method and the body mass index on speed and agility in SSB players Klaten aged 13-14 years with a value against speed  $F_{\text{calculate}}$  of 2.635 and a value of Sig. 0.124 whereas the value against agility  $F_{\text{calculate}}$  of 1.252 and Sig. of 0.252. Thus it can be concluded that to train the speed more effectively using the shuttle run method for low or high BMT, whereas to train agility more efficiently using the zig-zag running method for lower or higher BMT.

**KEYWORDS:** Body mass index, speed, agility, shuttle run, zig-zag run.

### I. INTRODUCTION

Sports is a need carried out by a person to maintain his body condition or health to carry out his daily activities. Sports and health have become an interrelated unity in human life [18]. The general definition of *exercise* is physical and psychological activities that aim to improve and maintain a healthy body [14]. Exercise has many benefits; for example, it can improve brain function, increase endurance, avoid obesity, and relieve stress. According to the results of the Indonesian Survey Scale Survey (SSI) results, football is the type of sport that the people of Indonesia most like; out of 100%, football has 21% [25].

Football is a big ball game consisting of 2 teams, and each team contains 11 players each. Football matches are conducted in 2 sessions, and each session is 45 minutes long. The main goal of the game of soccer is to put the ball into the opponent's goal as much as possible and achieve victory. *Football* is a complex game that requires specific training. Players are required to have good physical conditions such as agility, speed, endurance, flexibility, and anthropometric conditions (arms length and leg length) [31]. Football athletes must manage a good position when playing a match. When a soccer player makes a pass, other players must be able to position and pursue the ball. This ability is part of the player's Speed. Speed is an essential component in soccer sports. In addition to Speed, playing football also needs agility in playing the ball and a fit body to compete for 90 minutes or more without feeling tired. [5] reveal the definition of *Speed*, namely "Speed is the body's ability to direct all its systems against loads, distances and times that produce mechanical work. If the coach understands the ability of SAQ's movement speed well, it will quickly determine the speed training program in a form that determines peak performance".

## The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years

Football games must be supported by good physical conditions, skills (tactics and techniques), and mentality. Regular training needs to be done early on a regular and sustainable basis to achieve an achievement in sports. [13] state, "So that the implementation of training can be organized and directed appropriately and meaningfully, its implementation should be guided by the principles of training in general." Sports training systematically improves athlete performance regarding fitness, skill, and power capacity [16]. [6] explain that "training aims to improve the athlete's ability and work capacity to optimize athletic performance. Exercise is performed in long masses and involves many rhythmic, physiological, psychological, and sociological variables". Based on the definitions of several experts, it is concluded that training is a sporting activity carried out consciously, systematically, gradually, and repeatedly over a relatively long time to achieve the ultimate goal of optimal performance. In simple terms, *exercise* can be defined as any effort to improve general physical fitness through a systematic and repetitive process of increasing exercise load, time, or intensity.

Players carry out exercises due to a form of effort to perfect skills and achieve specific goals. The proper training method needs to be used to increase the speed and agility of athletes. [19] explain, "Basically, training is a process of change for the better, namely to improve physical quality, the functional ability of body equipment, and psychological quality of trainees." *Sports training* is an activity that is carried out at a time and carried out repeatedly, programmed in the principles of training loading in order to create athletes who achieve the highest performance standards. The training program must follow the concept of periodization, compiled and appropriately planned based on the sport so that the athlete's energy system can adapt to the sport's specificity. Success and success in achieving sporting achievements must apply training steps such as training principles, components, and factors. One school that trains soccer skills is the Soccer School (SSB).

Football School (SSB) is a sports organization, especially football, that has a mission to develop the potential of athletes. Establishing a football school aims to produce talented or suitable athletes who can compete with other football schools, please the community, and ensure the organization's survival, especially on the football field. [30] defines a "football school as an institution that provides knowledge or teaches about basic football techniques and basic techniques to students starting from how and mastering football techniques properly and correctly". In addition to exercise, physical condition is also influenced by several factors, including body type, gender, weight, and age. [17] There are three types of weight measured by BMT: standard, thin, and fat. This can be seen from the body's composition, that is, the proportional proportion of height and weighs he more proportional the proportion, the better the fitness. In determining the composition of this body, the measurement of the Body Mass Index is used. BMT is a measure by using Weight and Height. Physical fitness is beneficial to support the child's physical condition significantly to improve his performance in the field of sport. In 2010, the world's child population was 6.7% obese and overweight, and is expected to rise to 9.1% by 2020 [5]. Regarding the physical condition of players in football, the coach must be able to implement training according to the player's body portion measured by the body mass index.

The [2] states, "There are four categories of player development stages, one of which is the formation stage, namely, at the age of 14-16 years. At this stage of formation is included in the early adolescent category, players or athletes experience significant changes in physical, psychological, and emotional development ". According to [28], Growth at the age of 13-14 years, namely, (1) This age is a mass where children experience puberty which is characterized by the development of sexual maturity and very rapid body growth (2) Psychologically, players tend to be unstable because they feel unfamiliar with their new bodies, (3) Physiologically, body growth is speedy, becoming bigger and bigger, which automatically reduces player skills and coordination, and (4) although at this age it is a critical age, it can be improved if given the right portion of the training. Therefore, the coach's role in the formation stage needs to be carried out so that athletes can identify and overcome new challenges and get used to physical, psychological, and emotional changes.

Based on the results of 2 initial observations, observations, and interviews with coaches conducted during training at the Klaten soccer school, in every training, the coach only focuses on mini-games without applying a variety of exercises by body mass index. Another problem is speed; when sparring with other teams, Klaten SSB players receive long balls from their friends, and the players lose the run from the opposing players, resulting in being unable to have the ball. Apart from speed, the agility of Klaten SSB players is also low; this can be seen when making movements, but the players still need to be more flexible and flexible. Agility is also needed to break free from the opponent's control by dribbling past the opponent and attacking to create a goal leading to victory. However, SSB Klaten players still require much training to have good agility. With low physical condition, the results of the first match did not score any goals; the second match was a draw with a score of 1-1. According to the results of interviews with coaches, students only do training if there is an event, so it is ineffective in training. In addition, SSB Klaten only participated in two competitions, including trofeo between SSBs and the Sleman Cup League, but both have yet to win the event. This happens due to the need for the player's physical condition, especially agility and speed.

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These components taken for research are speed and agility to determine the physical conditions that can affect the ability to play soccer. Lack of knowledge about the correct training technique, intensity, benefits, and effectiveness of Zig-zag and shuttle run exercises. It is interesting for researchers to investigate these two exercises titled "The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years".

## II. MATERIAL AND METHOD

The method used in this research is the experimental method, which is research that aims to determine the cause and effect and to identify the effects and benefits of Zig-zag run and shuttle run training on increasing the speed and agility of Klaten SSB players aged 13-14 years with a classification of body mass index.

The design used in this research is an experimental method using a 2x2 factorial design. [29] states, "Factorial is an action on one or more variables that are manipulated simultaneously to study the effect of each variable on the dependent variable or the effect caused by the interaction between several variables." This experimental study used three groups that received different treatments: the Zig-zag and shuttle run training models. The following is the research design in this experimental research.

**Table 1. Factorial Research Plan 2x2**

Training Methods (A) Body Mass Index (B)	Zig-zag run (A1)	Shuttle run (A2)
BMT Low (B1)	A1,B1	A2,B1
BMT High (B2)	A1,B2	A2,B2

Description:

1. A1B1: Low BMT player group trained using Zigzag run training method
2. A1B2: High BMT players trained using the Zigzag Run exercise method
3. A2B1: Low BMT player group trained using the Shuttle run training method
4. A2B2: High BMI player group trained using the Shuttle run training method

The population in this study were active SSB Klaten soccer players totaling 35 people. With reference to this statement, the combination method is an approach that combines qualitative and quantitative data. The use of a combination method in this study is expected to produce data that is very accurate and in accordance with the real situation of the achievement coaching program at SSB Klaten. The data collection technique in this study used random sampling, because it was based on several considerations looking at the situation in the situation that was happening at that time. Random sampling is a way of taking samples in an arbitrary / random manner without regard to criteria [29]. Each sample in random sampling has the same right to be selected as a research sample. The population in this study consisted of active SSB Klaten soccer players, totaling 35 people. Concerning this statement, the combination method is an approach that combines qualitative and quantitative data. The use of a combination method in this study is expected to produce data that is very accurate and representative of the actual situation of the achievement coaching program at SSB Satria Pandawa

The data collection technique in this study used random sampling because it was based on several considerations looking at the situation in the situation that was happening at that time. Random sampling is a way of taking samples in an arbitrary/random manner without regard to criteria [29]. Each sample in random sampling has the same right to be selected as a research sample. Instrument validity is an important test to do before analyzing data. [29] states, "The reliability test is the extent to which the measurement results using the same object will produce the same data." Meanwhile, the validity test measures whether an instrument is valid. According to [10], the Illinois agility test has a validity coefficient of 0.82 for adolescents and children and a reliability value of 0.92. The 30-meter speed test has a validity value of = 0.92 and a reliability of = 0.94 [22]. Data analysis in the study was assisted by SPSS 25.0 software with two-way ANOVA analysis techniques. With further tests using the Tukey test.

## III. RESULT AND DISCUSSION

### Result

This study aims to determine the effect of training methods and body mass index on the agility and speed of SSB Klaten U13-14 players. This study uses two groups that will be given different treatments: Zig-zag run and shuttle run. The following are the results of the research analysis:

1. Prerequisite Test
  - a. Normality Test

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**Table 2. Normality Test**

Indicator	Kolmogorov-Smirnov	Shapiro Wilk	Note
Pretest_Speed_A1B1	0.200*	0.237	Usual
Posttest_Speed_A1B1	0.200*	0.609	Usual
Pretest_Speed_A2B1	0.200*	0.881	Usual
Posttest_Speed_A2B1	0.200*	0.212	Usual
Pretest_Speed_A1B2	0.200*	0.609	Usual
Posttest_Speed_A1B2	0.200*	0.907	Usual
Pretest_Speed_A2B2	0.200*	0.212	Usual
Posttest_Speed_A2B2	0.189	0.484	Usual
Pretest_Agility_A1B1	0.200*	0.907	Usual
Posttest_Agility_A1B1	0.200*	0.789	Usual
Pretest_Agility_A2B1	0.200*	0.484	Usual
Posttest_Agility_A2B1	0.200*	0.237	Usual
Pretest_Agility_A1B2	0.200*	0.789	Usual
Posttest_Agility_A1B2	0.112	0.881	Usual
Pretest_Agility_A2B2	0.200*	0.908	Usual
Posttest_Agility_A2B2	0.200*	0.098	Usual

Based on the results of the analysis on the normality test, it can be concluded that the shapiro wilk test value is more than 0.05, which means that all of this data is normally distributed.

b. Homogeneity Test

**Table 3. Homogeneity Test**

Indicator		Sig.	Note
Speed	Pretest	0.289	Homogeny
	Posttest	0.583	
Agility	Pretest	0.482	
	Posttest	0.588	

Based on the results of the analysis on the normality test, it can be concluded that the shapiro wilk test value is more than 0.05, which means that all of this data is normally distributed.

2. Hypothesis Test

Research hypothesis testing is based on the data analysis results and two-way ANOVA analysis interpretation. The following are the results of hypothesis testing:

a. Hypothesis testing I

**Table 4. Hypothesis I on Speed**

Source	Type III Sum of Squares	F	Sig.
Exercise Method	1.653	5.528	.032

A sig value was obtained based on the univariate analysis results  $0.032 < 0.05$ , the hypothesis "There is an effect of training methods on speed and agility" is accepted.

**Table 5. Hypothesis I on Agility**

Source	Type III Sum of Squares	F	Sig.
Exercise Method	7.236	7.837	.013

A sig value was obtained based on the univariate analysis results  $0.013 < 0.05$ , the hypothesis "There is an effect of training methods on agility" is accepted.

b. Hypothesis testing II

**Table 6. Hypothesis II on Speed**

Source	Type III Sum of Squares	F	Sig.
BMT	1.642	5.490	.032

A sig value was obtained based on the univariate analysis results  $0.032 < 0.05$ , the hypothesis "There is an effect of BMI on speed" is accepted.

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**Table 7. Hypothesis II on Agility**

Source	Type III Sum of Squares	F	Sig.
BMT	5.030	5.448	.033

A sig value was obtained based on the univariate analysis results.  $0.033 < 0.05$ , the hypothesis "Is there an effect of BMI on agility" is accepted.

c. Hypothesis testing III

**Table 8. Hypothesis III on Speed**

Source	Type III Sum of Squares	F	Sig.
Exercise Method	.788	2.635	.124
* BMT			

A sig value was obtained based on the univariate analysis results.  $0.124 > 0.05$  means the hypothesis "There is an interaction between training methods and BMT on speed" is rejected.

**Table 9. Hypothesis II on Agility**

Source	Type III Sum of Squares	F	Sig.
Exercise Method	1.306	1.414	.252
* BMT			

A sig value was obtained based on the univariate analysis results.  $0.252 > 0.05$  means the hypothesis "There is an interaction between training methods and body mass index on agility" is rejected.

## Discussion

### Differences in the effect of training methods on speed and agility in Klaten SSB players aged 13-14

#### 1. Differences in the effect of training methods on speed in Klaten SSB players Age 13-14

Based on the results of the analysis above, the sig value is known.  $0.032 < 0.05$ , so there is an influence between training methods and speed. Based on data analysis, the average difference between the pre-test and post-test speeds on the Zig-zag run is 1.06, while on the shuttle run, the difference between the pre-test and post-test speeds is 1.16. So, the shuttle run training method is more effective for increasing speed in SSB Klaten U13-14 players.

Zig-zag running, often referred to as "agility training," is an exercise often used in sports training to increase athletes' speed, agility, and coordination. Zig-zag running can affect agility because this training method involves rapid and sudden changes in direction. It forces the muscles to adapt to rapid changes in direction, which helps improve responsiveness and agility. The zig-zag run also requires good coordination between the eyes, brain, and muscles. The athlete must be able to see the correct direction, process the information, and send signals to the muscles to perform the proper movement. This helps improve coordination and reaction time. Zig-zag runs also require good balance. The athlete must be able to keep his or her body balanced while making sudden changes in direction. This exercise helps strengthen the core muscles and improves overall balance. In addition, the zigzag run creates a situation where the athlete must respond quickly to a change in direction or external stimulus. This helps improve reactive speed, which is responding quickly to unexpected situations.

Performing zigzag movements requires using various muscles, including leg, hip, and core muscles. This exercise can help develop the muscle strength needed to achieve maximum speed. Zigzag running can help improve leg muscle strength and endurance. This can increase speed in the long run, as solid leg muscles can generate greater power when running. By performing zigzag runs, athletes will be more aware of their body position in space. This helps improve body awareness, essential for achieving maximum speed and avoiding injury.

#### 2. Difference in the influence of training methods on agility on SSB Klaten aged 13-14

Based on the results of the analysis above, the sig value is known.  $0.013 < 0.05$ , so there is an influence between training methods and agility. Based on data analysis, the average difference between pretest-posttest agility on the Zig-zag run is 2.209, while on the shuttle run, the difference between pretest-posttest agility is 1.432. So, the Zig-zag run training method is more effective for increasing agility than the Zig-zag run on SSB Klaten U13-14 players.

The increased agility results from muscle strength and strength in the lower extremities that increase with short-distance running exercises and movements to change body direction. When doing this exercise, there will be a repetition of acceleration, which is characteristic of rapid changes in direction and considered the power of action [23]. According to [11], shuttle run

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training is oriented toward footwork and speed based on sprinting movements by changing direction and body position, which also trains body balance as a component of agile movement to improve agility.

In line with the results of this study, which showed an increase in agility caused by the shuttle run training program, [12] conducted a study that aims to determine the effect of shuttle run and ladder drill training on agility in 20 students at Macan Putih Soccer Academy Kediri. The agility test results in the experimental group with shuttle run (10 students) showed an average value of 17.34 seconds for the pretest and 17.12 seconds for the posttest. The pretest and posttest results, which show a difference of 0.22 seconds, indicate that the shuttle run significantly increases agility. According to [12], shuttle run training can increase agility because when doing shuttle runs, isometric contractions occur to keep the legs and feet moving due to isotonic, isometric, and isometric contractions which in turn occur when reducing running speed to change direction. Eccentric contractions occur when the hip muscles, knee extensors, and hip extensors slow the forward momentum of the body and move the body to a new position. Doing shuttle runs during training will make the body adapt to improve agility. [9] conducted a study to determine whether there are differences in the effect of shuttle run and ladder drill training on improving agility in 30 futsal players divided into two groups with a four-week training program. The results of the study in the shuttle run group (15 futsal players) measured using the Illinois agility test showed an average agility score of 17.46 (posttest) and 16.77 (pretest), with a difference of 0.69. The significance value of  $0.001 < \alpha < 0.05$  indicates that the shuttle run affects the agility of futsal players. Shuttle runs aim to train body movement and speed, especially in the lower extremities. Shuttle run training increases muscle contraction and adaptation of the nervous system in producing motion to provide changes in muscle fibers that make muscles respond to movement more effectively, making it easier for the body to change direction quickly. Then repeated and systematic training will increase the agility needed by soccer players.

The comparison between the shuttle run and the three-corner drill in this study showed that both had no significant difference. However, based on the difference between the pre-test and post-test values of the two exercises, the shuttle run (1.84) is better at improving agility than the three-corner drill, which has a value of 1.76. This result aligns with the research findings of [27], which concluded that a shuttle run is more effective than three corner drills in improving the agility of 30 extracurricular soccer students at Muhammadiyah Gisting Junior High School. These results indicate that the shuttle run is more effective than the three-corner drill.

Agility involves the ability to move and the capacity to run fast while stopping and starting to run again immediately [15]. According to [21] the difficulty level in developing agility is higher than in developing other physical fitness elements because agility represents the embodiment of other physical physical fitness, namely speed, strength, and balance. Therefore, when someone tries to improve their agility, they need to plan an exercise method that includes elements to increase agility. [1] have made practical efforts to improve agility, they gave 36 men's soccer players from U19 and U17 teams quick eight-week strength training (three time per week). The teams were divided into two groups: the control group and the experimental group. Illinois test results showed that fast strength training effectively improved the experimental group's agility performance.

According to [20] combine training that focuses on strength, speed, and rapid agility in training called speed, agility, and quickness (SAQ). This training was conducted for twelve weeks with a U19 football player. The teams were divided into control groups and experiments, each with 66 players during the study. Research shows that SAQ effectively improves agility when players play with or without the ball. [4] also researched SAQ, but they focused more on speed, agility, and acceleration. It was found that doing SAQ training for eight weeks could improve football players' speed, agility, and acceleration. SAQ training can improve football players' performance and increase their strength during high-speed movement activities, such as slowdown performance, body change performance, and planned speed performance.

Shuttle run involves lateral movement and sudden change of direction. By doing these exercises regularly, athletes will develop the ability to move quickly and smoothly, which is essential in various sports match situations. Shuttle runs create training situations that reflect the conditions of the sports game, where directional changes and rapid moves occur frequently. By doing this simulation, athletes can get used to the physical and mental demands they face in the game.

It is important to note that agility is a complex skill, and shuttle run training should be integrated into the training program in a balanced manner with other exercises that support agility development. With consistency and integrity, the shuttle run can be a crucial element in improving athlete agility.

### Difference of low and high BMT influence on speed and agility in SSB players Klaten aged 13-14

#### 1. Difference in influence of low and high body mass index on speed in SSB players Klaten aged 13-14

Based on the results of the above research, it is known that low, high body mass index influences speed and agility. This is demonstrated by the univariate analysis of sig value  $< 0,05$ . So, the second hypothesis is accepted. Based on analysis data, the



## The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years

average pre-test-posttest rate at low BMT rates is 0.862, while at high BMT, it is 1.357. In this study, high BMT can increase effectively compared to low BMT.

The Body Mass Index (BMI) is a measure used to measure the ratio between a person's weight and height. Although the BMI is generally used to assess weight status, little direct evidence connects it specifically to an athlete's speed. Speed in the context of sports is more influenced by factors such as muscle strength, running techniques, agility, and endurance. However, weight and body mass distribution can affect speed in some ways. The strength/weight ratio: Players with a high strength ratio to their weight may be able to generate a significant push when running. This can help increase speed, especially when starting or accelerating.

Players with a balanced body mass distribution and good agility can change directions quickly and maintain their speed more effectively. Players with sufficient muscle mass, especially in the legs, can produce explosive forces that help reach maximum speed. However, this is only sometimes directly correlated with BMT, as BMT only measures weight relative to height and needs to consider body composition or muscle distribution. Players with a balanced weight or according to their physical needs may have better endurance, allowing them to maintain speed during long run periods.

Although there are several aspects in which weight and body mass distribution can affect speed, it is essential to remember that speed in the context of sports like football is influenced by a combination of various physical and technical factors. Speed increases generally require exercises focusing on strength development, detonation, running techniques, and agility rather than just looking at BMT values. Therefore, a more holistic evaluation of an athlete's physical and skills is more relevant in the context of sports and achievement of maximum speed.

This investigation is also in line with a study conducted by [7] on the relationship between body mass index and agility and speed in university players. This study stated that there is a significant relationship between BMT and Agility and Speed.

### 2. Difference in influence of low and high body mass index on agility in SSB players Klaten aged 13-14

Based on the results of the above research, it is known that low and high body mass index influence agility. This is demonstrated by the univariate analysis of sig value  $< 0,05$ . So, the second hypothesis is accepted. Further, based on analysis data, the average differential pretest-posttest on low flexibility BMT is 2.172, whereas, on high flexibility pretext, BMT is 0.692. Then, low BMT can increase effectively compared to high BMT.

Excess weight directly reduces agility due to the friction of fatty tissue in muscle fibers so that muscle contractility becomes reduced. So, weight affects a person's agility level. Height is part of anthropometry that influences the contribution given at a small point to a person's agility [26].

High body fat and weight are very much needed in football because an ideal weight helps football players get their best out, while overweight players can lower their ability. The ideal height and weight, of course, will support the player's performance. In some sports, including futsal, a high posture, an ideal weight, and good physical condition will support high athletic performance [2].

Being overweight strongly influences players' movement patterns; players are required to move smoothly when carrying their opponents' balls, so one of the factors affecting the agility of futsal players is the tendency to be overweight or have abnormal BMT. This aligns with a study [24] in the journal *Body Mass Index with Futsal Player Agility*, which states that a reasonably high BMT has lower agility. This is because the higher the BMT, the heavier the player's body is, so the player's movement is slowed down, while futsal games require agility to overcome all opponent constraints. This is also confirmed by the FTI UAD FC Yogyakarta research results, which show that BMT has a positive and significant relationship to agility. Agility tends to be very specific to the appearance of different movements, and the demand to make rapid changes in movement patterns is visible in futsal games [8].

According to [3] explained that being overweight directly reduces agility, where excess weight tends to lead to muscle imbalance in the trunk and fat tissue friction in muscle fibers so that muscle contraction becomes reduced. The muscle in contracting and producing tension requires some energy or strength. Strength leads to the output of energy from muscle contractions and is directly related to the amount of tension produced by muscular contractions, thereby increasing muscle strength through tension levels, hypertrophy, and recruitment of muscle fibers. Since force is one of the components of speed, the greater the force of a movement, the larger the explosive energy that occurs over time will be able to increase agility. [26] on Body Mass Index (BMT), body weight plays a vital role in agility. Excess weight directly reduces agility due to the friction of fatty tissue in muscle fibers so that muscle contraction becomes reduced, reduced muscular contraction resulting in decreased speed and agility. By having a normal BMT, the player can move quickly. If the BMT is too thin, it will result in a lack of balance that can affect agility.

## The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years

### Interaction of differences in the influence of exercise methods and body mass index on speed and agility in SSB players Klaten aged 13-15

#### 1. Interaction of differences in the influence of exercise methods and body mass index on speed in SSB players Klaten aged 13-15

Based on the results of the above research, it is known that there is no interaction between the influence of the exercise method and the low or high body mass index on agility. The univariate analysis of the value sig proves this.  $0,124 > 0,05$ . So, the third hypothesis is rejected.

Weight and height can affect the speed of a football player through several factors. However, it is essential to remember that speed is determined not only by weight and height alone but also by several other factors, including muscle strength, running techniques, endurance, and fatigue.

One influence of the speed of a football player is that the longer steps, the higher players tend to have longer steps. If the move can be directed efficiently, the high player can cover the distance faster than the shorter player.

A higher weight can give the player an advantage in generating a more significant push when running. This push is essential to get maximum speed when starting a run or when accelerating. In addition, players with higher body weight may have greater body inertia. These inertias can provide additional stability and strength, which can help players maintain their speed and prevent unwanted directional changes.

More efficient muscle growth can also affect the athlete's running speed. A player with a balanced weight can have more muscle mass, especially in the legs. A larger muscular mass can produce a greater force to push the body forward at maximum speed. Some studies suggest that players with higher weights may be more efficient in increasing their speed during more extended run periods. This can be beneficial in matches where players must perform long sprints or maintain speed over long periods.

Although there are potential advantages of weight and height, it does not mean that a shorter or lighter player cannot be a fast player. Many other factors, such as muscle strength, running techniques, and agility, also play an essential role in determining a football player's speed.

In addition, the position of players on the field can also influence the extent to which weight and height play a role in speed. For example, a player who plays as an attacker or winger may be more focused on maximum speed, while a defender might be more emphasizing agility and the ability to respond to the change of direction quickly.

Speed in the context of exercise involves several factors not limited to the Body Mass Index (BMT). Several factors besides BMT, which is the strength of the body. Muscle strength is the main factor in determining the speed. Strong muscles, especially the legs, can produce greater push power when running, which helps increase speed. The second is explosion, which is the ability to generate energy quickly. Increased explosion power, especially in the legs, can accelerate movement and give an advantage in reaching maximum speed. The third is the flexibility of the muscles and joints, inefficient movement, and optimal step length. Flexible muscles can optimize the range of movements, which can increase speed.

It is important to remember that speed in the context of sports is the result of the complex interaction between these various factors. Therefore, a holistic and coordinated approach to physical and technical training can help players increase their speed effectively.

#### 2. Interaction of differences in the influence of exercise methods and body mass index on agility in SSB players Klaten aged 13-15

The results of the analysis showed sig. The value  $0.252 > 0.05$  means there is no significant interaction between the method of training the zig-zag run and shuttle run with high BMT, low speed, and agility in the player SSB Klaten U13-14. Based on these two training methods with body mass index of speed and flexibility, there is no interaction. The method of practice, zig-zag run and shuttle run, improves the speed and agility of the player of the SSB Klaten, and the low and high BMT also affect speed and elasticity.

Agility in the context of fitness is the ability to move quickly and smoothly, including changing direction and speed and responding quickly to changing situations. Although the Body Mass Index (BMT) is not directly related to agility, several other factors can affect a person's ability to move, including muscle and core strength, which play a crucial role in agility. Shuttle runs involve many movements that utilize the leg and core muscles. Strengthening these muscles helps increase strength and momentum, which is critical to moving quickly and smoothly. Strong muscles and a stable core help maintain balance, enable rapid change of direction, and support efficient body movements.

As with speed, running techniques can also affect agility; good running techniques can improve agility, including using legs and body positions and selecting appropriate steps to optimize directional changes and speed shifts. Foot explosiveness also influences agility; good explosivity helps players start dashing and respond effectively to changing field conditions. Besides, good

## The Effect of Training Methods and Body Mass Index on the Speed and Agility of Klaten SSB Players Age 13-14 Years

balance and body stability play an essential role in agility. Maintaining balance while performing fast movements helps prevent injury and allows players to respond better to changes in direction.

Rapid and cognitive responses are needed in physical conditions, especially agility, as reactions involve the ability to respond quickly to changing situations. Rapid reaction skills and cognitive abilities, such as fast decision-making, can improve player agility. Muscle and joint flexibility also play a role in agility. Flexible muscles allow a more extensive range of movements, which can help in making movements faster and smoother. In addition to the condition of a player's body, one thing affects a person's agility, namely experience and technical skills; players with experience and good technical skills in a particular sport tend to have a higher level of agility. This is because experience can form an automatic reaction to a game situation.

Therefore, agility is not the result of a single factor but of a combination of various physical and technical elements. Although BMT is not directly involved in agility, attention to factors such as strength, running techniques, and balance can help increase a person's agility in fitness.

### IV. SIMPULAN

Based on the results of the research and the results of the data analysis that has been done, the conclusion is that there is an effect of the Zig-zag run and shuttle run training method on speed and agility in Klaten SSB players U13-14 years; there is an effect of low and high body mass index on speed and agility in Klaten SSB players U13-14 years, There is no interaction effect between training methods and body mass index on speed and agility in Klaten SSB players U13-14 years. This study has implications for this research; the first is theoretical implications. Theoretically, this research is likely proper as a scientific study and can be further developed about zig-zag runs and shuttle runs to increase speed and agility. The second is practical implications; the study's results can be used as a consideration for coaches, football coaches, coaching students, and further researchers in creating appropriate training programs to increase speed and agility in SSB players. Thus, training becomes more effective and will get results that the coach expects. In addition, there are recommendations, namely to coaches and other researchers, given the following suggestions: For the coach, based on the results of the research that has been done, it proves that to increase speed more effectively with the shuttle run method than the zigzag run. Furthermore, agility is more effective with the zigzag training method than the shuttle run. Trainers are advised to choose training methods tailored to the needs and situation in the training process; the zig-zg run and shuttle run are proven to increase the speed and agility of SSB players, seen from the pretest and posttest data, which has increased significantly. Each method has advantages and disadvantages, so a coach must be careful in choosing methods for team needs. Further Researchers, namely, further researchers, are expected to be able to replace the attribute variables considering that several factors affect speed and agility, including leg muscle explosiveness, gender, step length, age, and fatigue. Future researchers can also control and quarantine the activities carried out by the sample. Next is to set the training time to be more effective.

### ACKNOWLEDGEMENTS

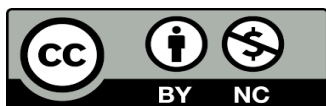
The author would like to express his deepest gratitude to all students who have been willing to complete this research. It's a journey of growth, discovery, and collaboration, and it wouldn't have been possible without the support, guidance, and contributions of many individuals and entities. As a big expression of gratitude, I express my appreciation to those who have played an important role in making this effort a reality.

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## A Comprehensive Framework for Mitigating Digital Divide Factors in Higher Education: A Case Study of Kabul University



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**ABSTRACT:** The issue of Digital Divide is a prevalent concern across various educational and non-educational domains in Afghanistan. The situation is particularly challenging at Kabul University, where numerous factors hinder the effective utilization of available digital technologies by students, teachers, and staff. Drawing on the existing factors, our research proposes a comprehensive solution framework to address this problem. Our framework aims to mitigate most of the Digital Divide factors that are present at Kabul University, thereby enabling its stakeholders to leverage digital technologies effectively. Compared to similar frameworks proposed in other developing countries, our approach is specifically tailored to the cultural and educational environments of Kabul University and Afghanistan. As such, it takes into account the unique challenges and opportunities presented by these contexts. Our research is a significant contribution to the discourse on Digital Divide in Afghanistan, and we believe that our proposed framework has the potential to transform the digital landscape of Kabul University. We hope that our findings and recommendations will inform further research and policy interventions in this area, ultimately contributing to the development of a more digitally inclusive society. In our research, we utilized a case study and design science methodology to address the issue of the Digital Divide at Kabul University in Afghanistan.

**KEYWORDS:** Digital Divide, Framework, Factors, Higher Education, Technology Adoption, Access, Connectivity

### 1. INTRODUCTION

The impact of technology on higher education is undeniable, as it has the potential to expand access and improve the quality of education worldwide. However, how technology is integrated into higher education varies greatly from region to region, country to country, and institution to institution, depending on a variety of factors.

Given that utilizing technology to improve higher education requires the necessary infrastructure, human skills, and means, and that it has significant implications for business operations, it is critical to recognize and pursue the potential to reduce inequalities in access to knowledge and information.

In light of these implications, higher education institutions and businesses need to leverage technology effectively to bridge divides and reduce inequalities. Doing so can unlock numerous opportunities for growth and innovation, enabling individuals and organizations to thrive in a rapidly evolving digital landscape.

The use of technology has revolutionized the way people communicate, making it easier to share thoughts, ideas, and perspectives. With the development of technology, traditional time and space constraints have been eliminated, and online tools have been created to share multimedia content. Simple interfaces have also been developed, enabling even non-experts to share and connect. (Chen & Wellman, 2004)

Access to technology has become an essential component of social, economic, and political realms, leading to a digital divide in society, which is the disparity in access to digital devices and social media. The digital divide is a significant issue in developing nations such as Afghanistan, making it difficult for people to communicate, access education, and participate in the economy. The



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majority of economic transactions and educational interactions take place online, so Kabul University must address the causes of the digital divide to find better solutions (Warschauer & Matuchniak, 2010).

The increasing significance of social media among young people cannot be overstated. Students' use of social networking sites has grown in popularity over time as a means of connecting with friends inside and outside of school. However, economists and professors are concerned that excessive use of social media may negatively impact students' educational performance. According to Kist (2008), Mehmood and Taswir (2013), and Jacobsen and Forste (2011), the utilization of technology, such as the Internet, is one of the most significant factors that can have a positive or negative impact on student's educational performance. Many parents and guardians are concerned that their children are not studying enough because they are spending too much time on Facebook and other social media sites. Many students continue to use social media sites in their daily lives, despite parents' concerns about their children's excessive use.

In conclusion, access to technology is critical in today's world, and the digital divide remains a significant issue in many developing nations. The increasing use of social media and technology among young people has become a concern for educators and parents, and further research is needed to understand its impact on student's academic performance.

In Afghanistan, social media and new technology usage have become a widespread phenomenon, and it is reported that many people in Kabul spend a considerable amount of time on these platforms instead of working (Noori, et al., 2022). However, access to digital technology and connectivity has remained a challenge for most of the country, leading to a digital divide that isolates Afghan citizens from the rest of the world (World Bank Group, 2016). While the Ministry of Communication and Information Technology (MCIT) has made significant progress in this area since 2001, these efforts have not been enough to fully bridge the gap.

Despite the quality of services provided by the MCIT, the digital divide remains a significant issue in many areas of Afghanistan, including Kabul University (Khan et al., 2012). One of the primary factors contributing to the digital divide in universities is the lack of access to information technology for students, faculty, and staff. Furthermore, many government employees are not familiar with modern management systems, which leads to a significant gap between the advancements in information technology and the older workforce (Khan et al., 2012).

To conclude, the digital divide in Afghanistan has hindered the country's progress in many areas, including education and the economy. The Afghan government must take decisive steps to bridge this gap and provide access to digital technology for all citizens. This includes not only improving infrastructure and access but also providing training and education to ensure that people can effectively use modern technology and management systems.

The research paper focuses on a digital divide factor in the context of Kabul University. The problem is evident and there is limited research effort on this topic. The authors pose one main research question and two sub-questions:

MRQ: "How can factors of the digital divide at Kabul University be identified, and can we reduce the digital divide using a Framework?"

SRQ1 is "What are the primary causes of Kabul University's digital divide?"

SRQ2 is "What is the most effective framework for reducing the digital divide at Kabul University?"

The authors investigate the cultural and educational environment of the university and identify challenges and opportunities. The objective is to propose a framework that mitigates the digital divide factors.

To systematically address these research questions, the researchers will employ a variety of methods. The main research methods for this paper are case study and design science with the help of a literature review. This approach will allow for a comprehensive exploration of the digital divide in Afghanistan, as the topic has not yet been examined from various perspectives.

This study can contribute significantly to understanding the digital divide and its various dimensions in Afghanistan. Additionally,



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it can catalyze other researchers to explore potential solutions to the problem. By identifying the factors contributing to the digital divide at Kabul University and proposing effective frameworks for reducing it, this study can play a critical role in bridging the digital divide and promoting socio-economic development in Afghanistan.

## **2. LITRATURE REVIEW**

There are additional related articles that define the digital divide and details of the various factors that contributed to it.

### *2.1 Digital Divide in General*

The term "digital divide" was coined by Horak and Fuchs (2008) to describe a situation in which individuals do not have equal access to information and communication technologies (ICTs).

- 1) Material access, which refers to the availability of software, hardware, networks, applications, and the usability of ICT devices and applications, is one category of the digital divide.
- 2) The capabilities required to operate ICT hardware and applications, create online content, and engage in online collaboration and communication are referred to as "use" and "skills access."
- 3) Benefit access refers to the use of ICT for the individual's benefit and the improvement of society as a whole.
- 4) According to Wei, Teo, Chan, and Tan (2011), institutional access refers to the empowerment of citizens by ICT to participate in political information, communication, and decision processes as well as their participation in institutions that govern the Internet and ICTs.

The majority of developed and developing nations are separated by the digital divide. Even though many people use the Internet, there is a growing digital divide in some nations. According to Wellman and Chen (2004), the demographics of new Internet users are comparable to those of current Internet users.

According to Antonio and Tuffley (2014), there are many digital divide factors in general, some of which are listed below.

- Societal Digital Divide
- Higher education digital divide
- Possibility of Bridging Digital Divide
- And many other factors are there

But here in this paper, we are concerned with the Higher Education Digital divide factors, now we will review some literature related to higher education.

### *2.2 Higher education digital divide*

New technologies are still being used in university training today, according to Cavusa and Kanbulb (2010). Nonetheless, a critical issue originates from the incongruities that exist among college understudies. Due to the necessity of locating and analyzing such disparities, a study of college freshmen can be extremely beneficial. This qualitative study intends to examine the digital divide among such freshmen by employing techno-autobiographies: the understudies' depiction of their conditions. Some of these newcomers won't be able to use the Internet and won't have as many ICT resources because of these technological differences. It is essential to keep in mind that while some freshmen use digital technology more frequently for personal use than others, not all of them do so consistently for academic purposes.

The digital divide effects students from all over the world in some way. So, scientists have tried to look at this phenomenon at different points in a student's life to figure out what's going on, find explanations, and come up with possible solutions. Waycott, Bennett, Kennedy, Dalgarno, and Gray (2010) found, for instance, that teachers and students in Australia use technology in different ways in both their everyday lives and higher education. To justify these differences, they relied on personal motivations and social norms that encourage the use of ICTs. The study found that students are more receptive and enthusiastic about using ICTs than

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teachers are. The study also showed that teachers primarily used ICTs for institutional purposes and pedagogical applications, whereas students used ICTs to organize their social lives. Edmunds, Thorpe, and Conole (2012) say that examining students' experiences with ICTs is a good way to look at the impact and attitudes of using them in educational, social, and recreational settings. They likewise say that an examination of how understudies use ICTs and collaborate with them can assist apprenticeships involving ICTs later on. In addition, this study reveals the student's prior knowledge and may serve as a foundation for innovative methodological approaches.

integrating teaching and policy dynamics to enable students in higher education to receive training through the integration of ICTs. Furthermore, it recommends that foundations should be responsible for giving such ICT support. Professors and students at more universities in Afghanistan, particularly Kabul University, have access to a variety of classroom-useful technologies. However, the university community is unable to incorporate these technologies into the educational system due to several obstacles. The lack of access to resources that are essential to lecturers and students but are available with internet access is one of the major issues caused by these factors.

Now here we will review some literature on proposed solutions and frameworks for such problems.

### *2.3 Utilization of ICT in education*

ICT has a significant impact on human development in all areas, including health, economics, education, and so on. Utilizing ICT in education provides students with the opportunity to acquire and disseminate knowledge across and within various disciplines (Okolocha, & Nwadiani, 2015). The instructor-focused pedagogical approach to dealing with under-study-focused pedagogy may be altered by the utilization of ICT. According to Abdirizak (2013), using ICT services in a school can improve learning and teaching by providing resources that assist in transitioning from the current teacher-centered learning environment to an information-rich, student-centered learning environment.

According to Baha, & Diakoumi (2010), ICTs enable students to access their lecture notes and other learning materials at any time and from any location—at their college or remotely—at any time. The use of ICTs, such as e-learning and distance learning, gives students more options for courses, times, and locations (Isroani, Jaafar, & Muflihaini, 2022). In addition, ICT tools made it possible for students to communicate with teachers and other students in new ways, offered a wider range of learning resources and methods, increased the flexibility and quality of group work, and made it easier for teachers to give students feedback on assessment tasks.

### *2.4 ICT in Afghanistan higher education*

ICT has spread worldwide in recent years. Every aspect of life, including higher education, has been impacted by this multiplication. ICT is currently firmly emphasized in education for teaching and learning in many developed as well as some developing nations. According to Pegu (2014), ICT has a significant impact on both the capacity and quality of education. According to Baha, & Diakoumi (2010), information and communication technologies (ICT) can offer lecturers and students an excellent opportunity to gain free access to a large library of information via the internet. Future generations should be educated in a manner that meets the requirements of the information age to prepare them for living in a developing society that is and will be heavily technology-oriented.

Unfortunately, three decades of war and instability have had several negative effects on the selection of ICT in education and its development, which is why ICT has less of an impact on Afghanistan's higher education system. In the areas of IT infrastructure, IT education, and IT management, significant progress has been made since 2002 (Hayward & Babury, 2015). In Afghanistan's higher education, for instance, some of the following IT infrastructures are implemented.

### *2.5 Ministry of Communication and Information Tecnology Strategy*

One of the Afghan government's strategic goals, according to MCIT (2015), is to provide all citizens with high-quality education.

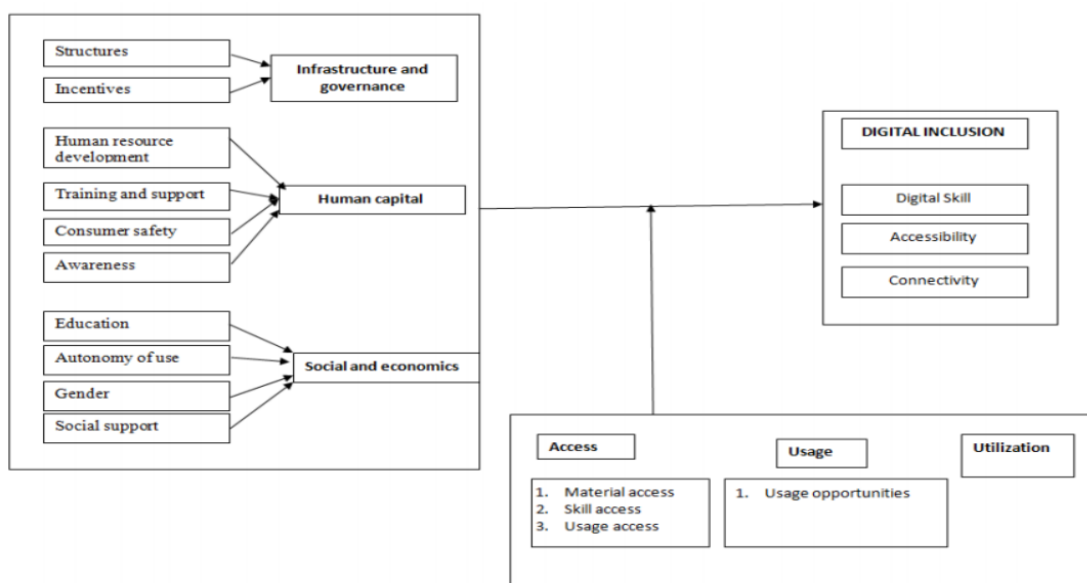
## A Comprehensive Framework for Mitigating Digital Divide Factors in Higher Education: A Case Study of Kabul University

They say that the Afghan government recognizes that ICT integration into education is essential to overcoming access and quality issues. In this regard, some policies are associated with the advancement of ICT in education: ICT education will be required in all primary and secondary schools nationwide; ICT instruction will be incorporated into all school educational modules nationwide; government schools, colleges, and universities will receive a sufficient ICT base, computing assets, and broadband internet to ensure the accessibility of ICT to educators, students, and administrators; and the provision of ICT facilities should be a requirement for private educational institution registration and licensing.

Electronic Learning (eLearning) would be advanced and incorporated as a crucial component of the government's approach to eliminating illiteracy, providing all-inclusive instruction to all children, and providing a stage for life-long learning and skill advancement among adults. The government will, in a staged manner, transform all primary and secondary schools into brilliant schools where serious use of ICT as an instructional device is made by both understudies and educators. The government will provide educational courses for instructors on the use of information and communication technologies in education (Oryakhail, Saay, & Nasery, 2021).

### 2.6 Frameworks for Digital Divide Inclusion

Various frameworks for the digital divide have been proposed by many scholars. Figure 1 shows a framework for Digital Inclusion in Nairobi.



**Figure 1. Framework for Digital Inclusion (Wambugu Naftaly Muriuki, 2016)**

According to Dewan and Riggins (2005), the way to bridge the digital divide may be to develop a model, framework or other technologies that would help users bypass the traditional means of access to technologies. The following Figure 2 shows the analysis of bridging the digital divide in three levels including global, organization and individuals (Riggins, 2005).

A conceptual framework that contributes the teachers and students in the classroom to use ICT usefully and also the skills and attitude of the teachers and students. The following Figure 3 show the dimensions of the meaningful use of ICT in the classroom (Grigg, 2016).

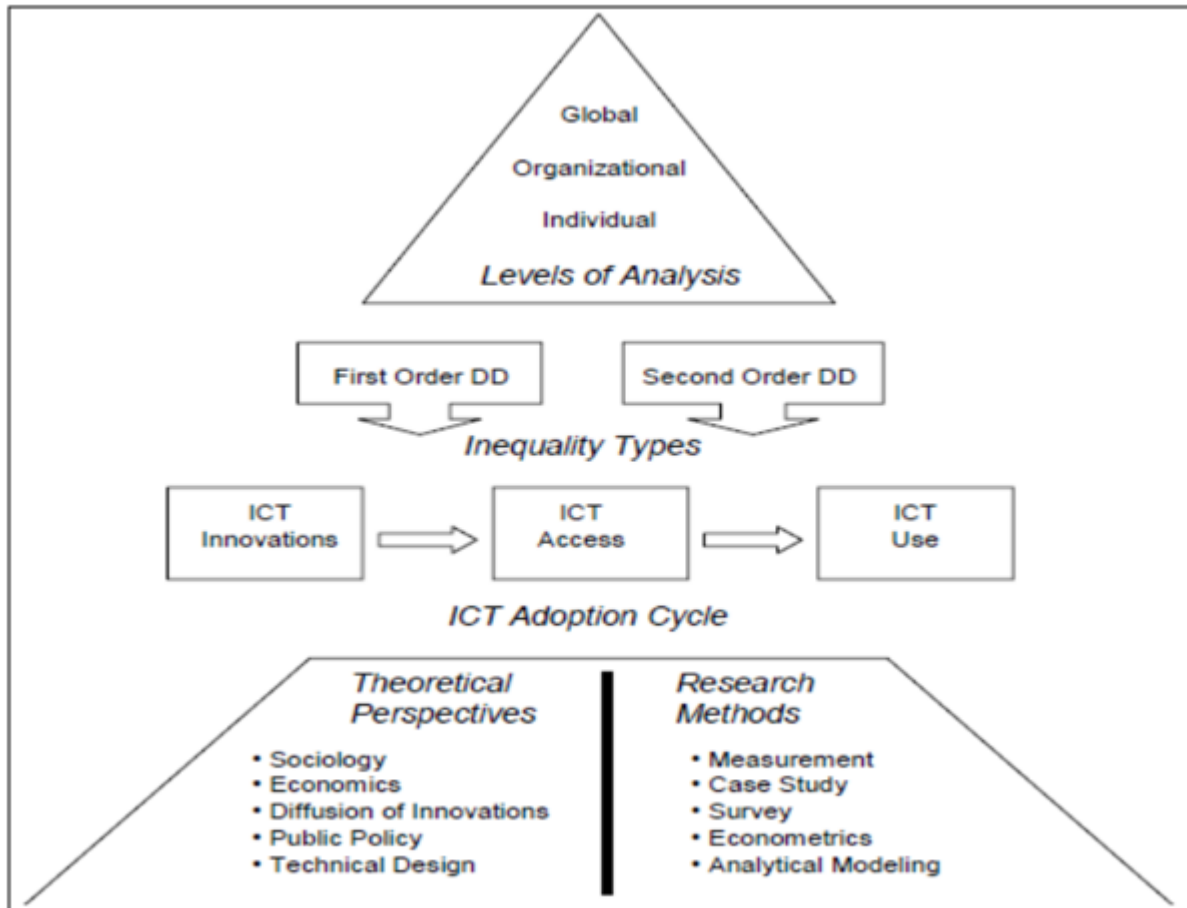
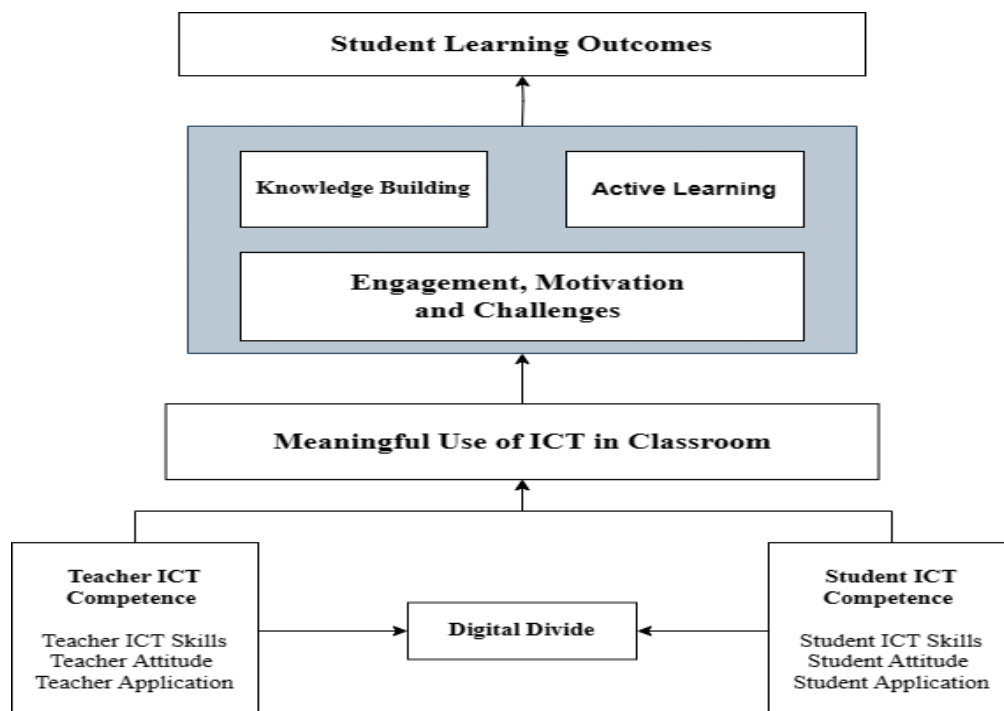


Figure 2. Conceptual Frame of analysis digital divide bridging



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Figure 3. A conceptual Framework of the dimensions of the meaningful use of ICT in the classroom

### 3. RESEARCH METHODOLOGY

This research uses a mix of research methods, namely Case Study and Design Science research methods. In the Case Study research design, there are multiple methods such as interviews, observations, documentation methods, voice recordings, and images to collect data, but in this research, the interview is used. So, the research questions of this exploratory research are answered through a qualitative approach, with primary data collected through interviews, which includes all requirements of the proposed digital divide factors. The collected data is analyzed by the NVIVO tool, which is known to be an effective program for analyzing research data. To identify the digital divide factors and propose solutions to resolve these factors, the research is conducted at Kabul University. Based on Figure 4, the research is a single-case study approach, where the environment is examined for identifying digital divide factors.

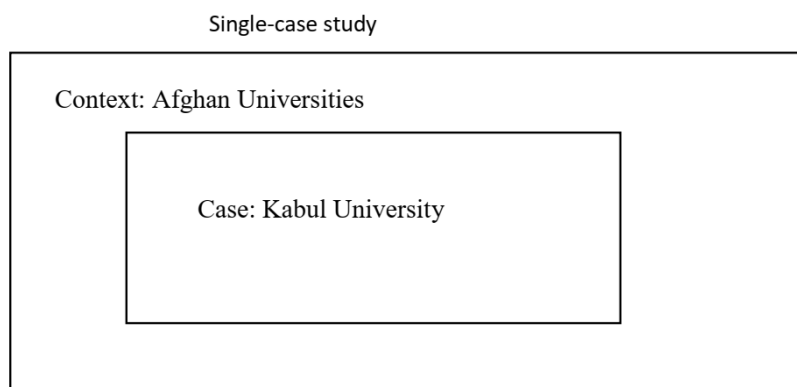


Figure 4. Holistic case study

#### 3.1 Data collection process

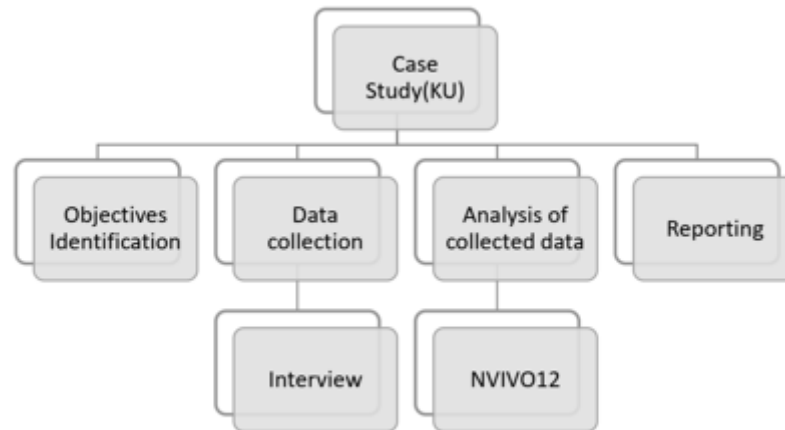
The data collection method involves conducting interviews with students, professors, and technical staff at Kabul University. Specifically, a set of open-ended questions has been prepared for interviews with students, university professors, and technical staff. These questions are designed to elicit detailed responses, providing valuable insights into the identification of factors contributing to the digital divide at Kabul University.

Each interview session is structured to last approximately 60 minutes and follows a defined agenda, commencing with an introduction and then moving on to the main questions related to understanding the digital divide at the university. During these interviews, sound recordings are made to facilitate transcription, aiding in subsequent analysis and future reference.

Following the interviews, recorded sessions are transcribed into text files manually to prepare them for analysis. The transcriptions undergo a review process by the interviewees, allowing for any necessary corrections or clarifications. However, no alterations are made to the original transcriptions.

To analyze the interview data, coding techniques are applied to formulate transcripts. The interview approach was selected as the most appropriate method for data collection, as it ensures the acquisition of reliable

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**Figure 5. Case Study Process from Kabul University**

Information from individuals with direct personal experience. Participants encompass technical staff, students, and university professors from Kabul University. A total of 40 students, 10 university professors, and 10 technical staff members from various faculties were chosen for these interviews.

Additionally, for the development and validation of the proposed framework, two workshops were organized. During these workshops, the framework was presented, and all participants, including individuals from computer science, law, physics faculties, and the Information Technology Center of Kabul University, provided questions and comments. It's important to note that these participants were distinct from those involved in the initial interviews.

### *3.2 Method of Data Analysis*

After the interviews are transcribed and properly documented, thematic analysis is conducted using NVIVO software. The latent theme is used to focus on a specific question across the majority of the data set. To test the hypothesis, interview coding procedures are used to code, sort, synthesize, and theorize from the interviews. The NVIVO tool is used for categorizing and classifying the questions, showing percentages and the number of repeated words. A theme was created for each question, including names, sources, descriptions, and references. The sources showed the numbers of interviewees, and the references showed how many interviewees repeated one code's attributes. The below figures show the themes that have been extracted from the analysis of the interview. The first theme shows the digital divide factors, and the second figure shows the solutions to the digital divide factors at Kabul University.



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Digital divide factors							
Name	Files	References	Created On	Created By	Modified On	Modified By	
<b>Cultural Factors</b>		4	6	1/19/2019 5:25 PM	SADAT	1/19/2019 5:25 PM	SADAT
administrative corruption		1	1	1/19/2019 5:36 PM	SADAT	1/19/2019 5:36 PM	SADAT
Lack of motivation		1	1	1/19/2019 5:43 PM	SADAT	1/19/2019 5:43 PM	SADAT
Security problems		4	4	1/19/2019 5:26 PM	SADAT	1/19/2019 7:01 PM	SADAT
<b>Infrastructures factors</b>		5	14	1/19/2019 5:22 PM	SADAT	1/19/2019 5:22 PM	SADAT
Lack of internet		3	4	1/19/2019 5:41 PM	SADAT	1/19/2019 7:03 PM	SADAT
Lack of stable power supply		4	6	1/19/2019 5:38 PM	SADAT	1/19/2019 7:05 PM	SADAT
Poor ICT Infrastructure		2	2	1/19/2019 5:37 PM	SADAT	1/19/2019 7:03 PM	SADAT
Poor University administration		2	2	1/19/2019 6:37 PM	SADAT	1/19/2019 7:04 PM	SADAT
<b>Knowledge Factors</b>		5	12	1/19/2019 5:23 PM	SADAT	1/19/2019 5:41 PM	SADAT
Lack of awareness on technology		1	1	1/19/2019 5:40 PM	SADAT	1/19/2019 5:45 PM	SADAT
Lack of ICT Skills		4	5	1/19/2019 5:35 PM	SADAT	1/19/2019 6:54 PM	SADAT
Low level of knowledge on Technolo		5	5	1/19/2019 5:30 PM	SADAT	1/19/2019 7:01 PM	SADAT
<b>Resource Factors</b>		5	16	1/19/2019 5:23 PM	SADAT	1/19/2019 5:40 PM	SADAT
Lack of computers and labs		5	5	1/19/2019 5:38 PM	SADAT	1/19/2019 7:05 PM	SADAT
Lack of expert individuals		2	4	1/19/2019 5:47 PM	SADAT	1/19/2019 6:55 PM	SADAT
Lack of Financial resources		5	6	1/19/2019 5:36 PM	SADAT	1/19/2019 7:04 PM	SADAT

**Figure 6. Themes addressing the Digital Divide factors**

The below figure shows solutions to all the five categories of digital divide factors.

Solutions to Digital divide factors							
Name	Files	References	Created On	Created By	Modified On	Modified By	
<b>Solution to cultural factors</b>		2	2	1/19/2019 5:55 PM	SADAT	1/19/2019 5:55 PM	SADAT
Providing motivation		2	2	1/19/2019 6:14 PM	SADAT	1/19/2019 6:59 PM	SADAT
<b>Solution to infrastructural factors</b>		4	7	1/19/2019 5:56 PM	SADAT	1/19/2019 5:56 PM	SADAT
Providing Curricula based on technology		2	2	1/19/2019 6:16 PM	SADAT	1/19/2019 7:00 PM	SADAT
Providing ICT infrastructure		3	4	1/19/2019 6:13 PM	SADAT	1/19/2019 7:08 PM	SADAT
Providing stable power supply		1	1	1/19/2019 6:15 PM	SADAT	1/19/2019 6:15 PM	SADAT
<b>Solution to knowledge factors</b>		5	10	1/19/2019 5:54 PM	SADAT	1/19/2019 6:13 PM	SADAT
Providing technical training		5	7	1/19/2019 6:06 PM	SADAT	1/19/2019 7:10 PM	SADAT
Raising awareness on using technology		2	2	1/19/2019 6:45 PM	SADAT	1/19/2019 6:59 PM	SADAT
<b>Solution to resource factors</b>		5	10	1/19/2019 5:53 PM	SADAT	1/19/2019 5:53 PM	SADAT
Financial resources provided by private sector		4	6	1/19/2019 6:07 PM	SADAT	1/19/2019 7:10 PM	SADAT

**Figure 7. Themes addressing solutions to digital divide factors**

### 3.3 Design Science Research for solution

The design science research (DSR) method is used in this study to design a solution for resolving the digital divide factors at Kabul University. The DSR methodology is used to create innovative and practical solutions that can help solve complex problems in the fields of information systems and information technology. It is an iterative process that involves identifying a problem, designing a solution, building and evaluating the solution, and then refining it based on feedback. The following steps are taken to apply the DSR methodology to this research (Miah & Genemo, 2016):

- 1) **Problem identification and motivation:** The first step in DSR is identifying a problem that needs to be addressed. In this case, the problem is the digital divide factors at Kabul University that are affecting the learning and teaching environment.
- 2) **Solution design and development:** The next step is to design a solution that could resolve these factors. This involved developing a conceptual framework based on the research findings.

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- 3) **Solution demonstration:** After designing and developing the solution, it is demonstrated by presenting a prototype of the framework to a group of students, university professors, and technical staff at Kabul University. Feedback is collected from the participants, and the solution is refined based on their comments and suggestions.
- 4) **Evaluation:** The final step in DSR is evaluating the solution to determine its effectiveness in addressing the problem through two workshops in the computer science faculty of Kabul University. This is done by comparing the learning and teaching environment at Kabul University before and after the implementation of the solution and by collecting feedback from the same group of participants who tested the prototype.
- 5) **Ethical Considerations:** In this research, ethical considerations are taken into account to ensure that the research is conducted in an ethical manner. The following ethical considerations are addressed:
  - a. **Informed consent:** All participants are informed about the nature of the research and provided with the opportunity to ask questions before agreeing to participate. They are also informed that their participation is voluntary and that they can withdraw at any time without consequences.
  - b. **Anonymity and confidentiality:** Participants are assured that their responses will be kept confidential and that their identities will not be revealed in any publications or presentations resulting from the research.
  - c. **Data protection:** The data collected from the participants is stored securely and is only accessible to the research team.
  - d. **Respect for diversity:** The research team is respectful of the cultural and religious diversity of the participants and makes every effort to ensure.

Overall, this methodology section outlines the research approach used in this study, including the research design, data collection, and data analysis methods that are used to identify the digital divide factors at Kabul University.

### 4. RESULTS

After analyzing the interviews, we found that most of the factors were: poor economic conditions of the university, lack of expert individuals, presence of negative mentality, existence of professional and technical problems, lack of awareness of technology, lack of computers, lack of persistent electricity, and lack of strong and cheap internet. Most of the respondents termed a lack of expert individuals in technological advancements and indicated the mentioned factor as an important factor in the failure of implementing the infrastructure projects at Kabul University. In addition to that, most of the respondents termed lack of awareness of technology as the main factor, which had a negative impact on the use of technology at Kabul University. Likewise, the respondents indicated that a lack of awareness of technology challenged the use of technology in the teaching and non-teaching areas. They termed the lack of expert individuals and teachers the factor that Kabul University officials did not pay attention to the related technological advancement. Likewise, the respondents termed lack of computers and strong and cheap internet as factors in the digital divide. The lack of capacity upgrading programs was also indicated as a factor in implementing programs for solving the problem of the digital divide at Kabul University, and this factor was advised to be prioritized in solving the problem. On the other side, the factors that prevented women from gaining equal access to technological devices were also indicated, as most of the respondents termed cultural issues that prevented women from gaining equal access to digital devices at Kabul University. The following table shows the main factors contributing to the digital divide at Kabul University. Table 1 shows the main factors contributing to the digital divide at Kabul University.

**Table 1. Main Factors of the Digital Divide at Kabul University**

Factors	Percentage
Lack of technical skills and knowledge	55%

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Poor ict infrastructure	43%
Culture and policy	41%
Lack of awareness on technology	37%
Lack of expert individuals	34%
Poor economic condition of university	27%
Lack of computers	25%
Lack of capacity upgrading programs	21%
Professional and technical problems	20%
Presence of negative mentality	15%

### 4.1 Main Digital Divide Solution Factors

To address the identified issues at Kabul University causing the digital divide among professors, students, and university staff, we formulated specific solution inquiries. Upon thorough analysis of the conducted interviews, we identified the critical solution factors that impact the utilization of ICT in the daily activities of professors, students, and university staff. These are providing technical training, internet access, a stable power supply, the usage of technological devices in teaching, raising awareness about using technology in education and learning, and standards and policies. The following table 2 shows the main solution factors.

**Table 2. Main Digital Divide Solution Factors**

Factors	Percentage
Providing technical training	56%
Provision of persistent electricity and internet access	37%
Providing curricula based on technology	35%
Usage of technological devices in teaching and learning	31%
Standards and policies	30%
Raising awareness on using technology in education	28%
Establishment of technological centers	26%
Employment of professional and expert individuals	23%
Providing computers labs	18%

### 4.2 Proposed framework

Since technology is an essential part of the modern educational system, the integration of technology into the educational system is significant. In order to use technology in the educational system, we need computers, local networks, the internet, and other media outlets as an integrated part of the educational system at a university, as they are accessible anytime.

The new technology could be considered an important reformative factor that could help students enhance the process of learning, as technology could be a means for them to have access to study materials and impart their analyzed information to others so that the digital divide is eliminated.

Thus, ICT has had a positive impact on educational organizations and units; however, some researchers have predicted that online study materials could adversely influence university educational systems, but the fact is that online study and education could positively influence education and help enhance an educational system as ICT leads teachers, university professors, and managers towards empowerment, and thus they can bring about new attitudes towards learning.

Nowadays, what is important is the improvement of the educational system, and many researchers have raised their ideas saying that ICT could guarantee education and bring about positive changes in the areas of education across the globe. Given the

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significance of ICT, policies and strategies regarding the integration of ICT into educational systems at universities should be devised by policymakers of higher education organizations in the country so as to eliminate the problem of the digital divide.

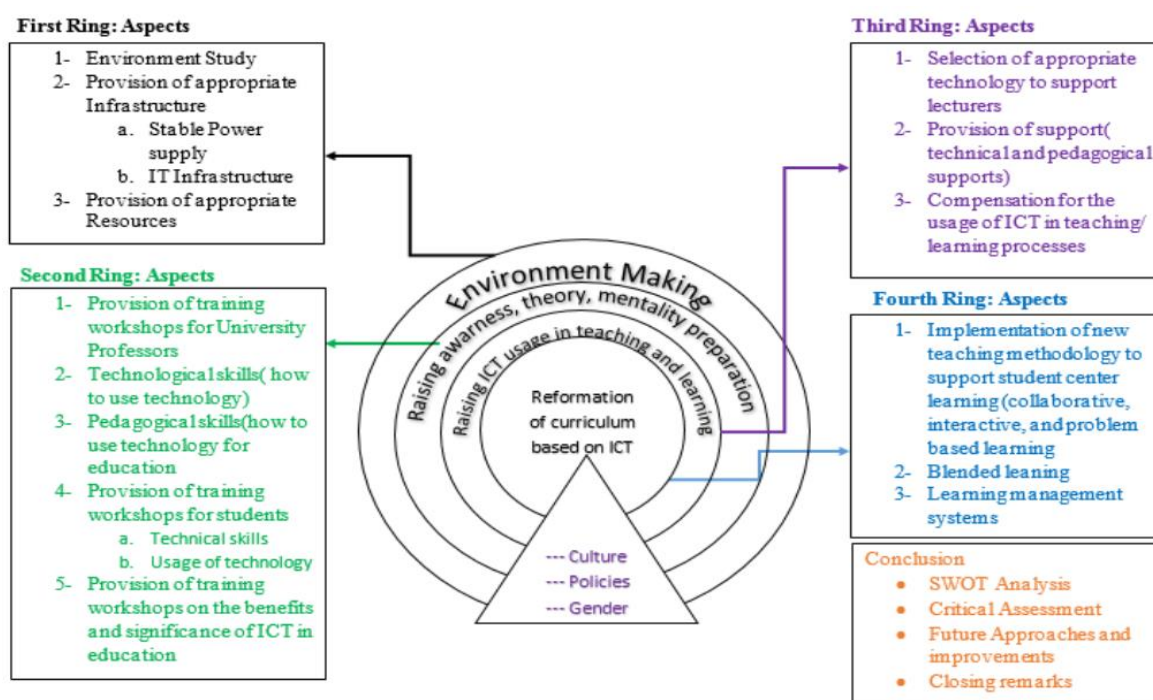
Each country across the globe devises its educational policies and strategies based on its national income, but in developing countries, such as Afghanistan, educational technology has not just developed considerably, but there has been a lack of educational infrastructure as well. Since discussing technology along with its other aspects is not that easy and implies a long range of full-scale requirements and requisite information, it would be better if we skipped the other aspects of technology, such as the attitudes towards learning with the integration of technology, using technology in education, setting standards and frameworks for online education at a higher educational level, and other aspects.

The integration of ICT has had a positive and progressive effect on the educational systems in many parts of the world; for instance, India, as a developing country, has had considerable achievements in this regard. But in Afghanistan, due to a lack of proper infrastructure, resources, and concepts with regard to the integration of ICT into the educational systems, this sector has remained sorely underdeveloped. Though the Ministry of Higher Education Afghanistan has expressed optimism for the years ahead, merely an infrastructure and notion in the context does not suffice; hence, a guideline is needed to steer the policymakers to come above the gap in the country.

The suggested framework was derived from the extensive analysis and findings of the case study and design science research conducted in this study. The researchers thoroughly examined the data collected from the case study, which involved unstructured interviews with students, university professors, and technical staff at Kabul University. The interviews provided valuable insights into the factors contributing to the digital divide at the university.

Additionally, the design science research method was employed to develop and refine the proposed solution for resolving the digital divide factors at Kabul University. The iterative process of design science research allowed the researchers to identify the problem, design a conceptual framework, and demonstrate a prototype of the solution. Feedback from participants, including students, professors, and technical staff, further shaped and improved the framework.

The combination of case study and design science research enabled the researchers to gain a comprehensive understanding of the digital divide at Kabul University and to develop a well-grounded framework to address the challenges effectively. This framework serves as a practical guide for policymakers and stakeholders in formulating strategies to bridge the digital divide and enhance the



## **A Comprehensive Framework for Mitigating Digital Divide Factors in Higher Education: A Case Study of Kabul University**

educational system at the university. Based on Figure 6, the proposed framework consists of four rings that have been prioritized step by step, and all four rings are interrelated, describing the ways that can be positive in mitigating the digital divide at Kabul University.

**Figure 8. Four-Ring Framework for Decreasing Digital Divide Factors at Kabul University**

### *4.3 Framework Evaluation Process*

To validate the proposed framework, two evaluation processes were used. First, in order to evaluate the research framework, the researcher presented the framework at Kabul University to a group of students, teachers, and technical staff in a workshop. They were from the computer science, Law, and Physic faculties and the Information Technology Center of Kabul University. In the first workshop, about two hours were taken, and the attendees agreed on most of the aspects of the framework and liked the points that have been kept into account for solving the digital divide at the university. However, they termed the framework as an effective means for solving the problem, but there were some points they asked to be added to the framework, which were: policy, cultural, and gender-related issues; the priorities of every ring aspect; and also some aspects added into all rings; for example, the environment study aspect is added into the first ring (Environment Making). In the second evaluation, the framework was presented and explained in detail in an hour, and then with corrected points that had been suggested in the previous workshop by technical staff, students, and university professors. After the evaluation and monitoring of the corrected points, the attendees of the second workshop agreed on the framework and said that it was the most effective means for solving the digital divide problem not only at Kabul University but all over the country.

As we can see, the framework consists of four main rings, which have been designed based on the requirements of the research study. The first ring suggests that training technical workshops for university teachers, training workshops for students, enhancement of technological skills at the university level, and training workshops on the benefits and significance of ICT in education are quite significant, which can initially pave the way to eliminating the factors of the digital divide at the university.

The second ring of the framework has been devoted to raising awareness and mentality preparation, which means that after the students, teachers, and other staff of the university are trained in different areas of technology, their awareness can be raised easily, as they have already acquired technological skills, and thus a mentality can easily be made for removing the digital divide from the university.

In the third ring, raising ICT usage in teaching and learning can significantly help support the idea. In this ring, teachers, students, and other staff can easily be made to help support the integration of ICT and other technological areas in the process of teaching and learning. In this process, the university is not only able to decrease the digital divide but also modernize the teaching and learning process so as to benefit from the experiences of the rest of the world.

After the first, second, and third rings are implemented, the fourth ring can be seen as a project, which can benefit the previously-trained staff at a higher level. For instance, the previously-trained teachers, students, and other staff of the university can participate in the reformation of the educational system based on ICT. This will not only further raise the awareness of the staff but also the economic capabilities at the university level.

The researcher designed this framework after exploring and analyzing the environment, which is the structure of Kabul University. After the environment was analyzed and examined, the researcher meditated on the questions that complied with the environment, including the staff of the university. The interview questions were planned, and the interviews were conducted with students, teachers, and other staff at the university. After analyzing the collected data, the results showed that most of the factors were: poor economic conditions of the university, lack of expert individuals, presence of negative mentality, existence of professional and technical problems, lack of awareness of technology, lack of computers, lack of persistent electricity, lack of strong and cheap internet, and lack of access to technological arenas for women. Most of the respondents termed the lack of expert



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individuals in technological advancements and indicated the mentioned factor as an important factor in the failure of implementing the infrastructure projects at Kabul University. In addition to that, most of the respondents termed lack of awareness of technology as the main factor, which had a negative impact on the use of technology at Kabul University. Likewise, the respondents indicated that a lack of awareness of technology challenged the use of technology in the teaching and non-teaching areas. They termed the lack of expert individuals and teachers the factor by which Kabul University officials did not pay attention to the related technological advancement. Likewise, the respondents termed lack of computers and strong and cheap internet as factors in the digital divide. The lack of capacity upgrading programs was also indicated as a factor in implementing programs to solve the problem of the digital divide at the university. enhancement of infrastructure, particularly addressing the issue of insufficient power supply, is essential to resolving the digital divide. Furthermore, the study revealed that women faced barriers to gaining equitable access to technological resources. Respondents primarily attributed this to cultural factors that hindered women's equal access to digital devices within the university. Another contributing factor was the absence of dedicated technological resources tailored to the needs of women. Notably, a substantial majority of the respondents (55%) recognized the pivotal role of information and communication technology (ICT) in overall societal development.

Having in mind the abovementioned factors, which substantially created a context for the digital divide, the framework was designed based on these factors. Therefore, the content of the framework not only fits the environment of Kabul University, but all the public and private universities and other educational institutes can also benefit in the same way, as these factors are comprehensive across the country, which has created a digital divide. This framework is the only way to remove the digital divide from the country's educational areas. However, there are some problems that can prevent the implementation of the framework's content to some extent, for instance, the lack of persistent power, etc. But despite all these, the framework can pave the way for future work as well and can be seen as the only way towards eliminating digital divide factors not only at Kabul University but all the educational institutes in the rest of the country.

### **5. DISCUSSION**

The research presented in this paper offers a comprehensive analysis of the digital divide at Kabul University, focusing on identifying and addressing the factors contributing to this divide. The study delves into an area with limited existing research, making it a significant contribution to understanding and bridging the digital gap in the academic environment of Kabul University.

The authors began by framing their research through a main research question (MRQ) and two sub-questions (SRQ1 and SRQ2). The MRQ aimed to understand how the factors of the digital divide at Kabul University can be identified and whether a framework could aid in reducing this divide. SRQ1 sought to identify the primary causes of the digital divide at Kabul University, while SRQ2 aimed to determine the most effective framework for reducing the digital divide. These research questions provided the necessary guidance for the study.

Based on the data collected from interviews with students, professors, and technical staff, the study identified several key factors contributing to the digital divide. These factors encompassed aspects like lack of technical training, inadequate internet and power supply, absence of technological devices in teaching, and gaps in awareness and policies related to technology use. The study further quantified the importance of these factors through a percentage-based analysis.

The proposed framework addressed these identified factors in a structured manner. It emphasized the need for training workshops, raising awareness, integrating ICT into teaching and learning, and ultimately encouraging staff involvement in the reformation of the educational system based on ICT. The framework was designed to be applicable not only to Kabul University but to other educational institutes in Afghanistan, highlighting its potential for a broader impact.

The authors evaluated the proposed framework through two workshops involving students, teachers, and technical staff from



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various faculties at Kabul University. The feedback from these evaluations was used to refine the framework, incorporating valuable suggestions regarding policy considerations, cultural and gender-related issues, and additional aspects to be included in each ring of the framework.

The study demonstrated the critical role of technology in enhancing the educational system and mitigating the digital divide. It emphasized the need for policy development and the integration of ICT into the educational systems of developing countries like Afghanistan. The findings underscored that addressing the digital divide is crucial not only for improving access to educational resources but also for modernizing the teaching and learning process.

However, challenges such as a lack of infrastructure and resources were acknowledged as potential obstacles to the implementation of the proposed framework. The authors noted that, despite these challenges, the framework remains a viable solution for eliminating digital divide factors and advancing educational systems in the country.

In summary, this research not only sheds light on the digital divide at Kabul University but also provides a practical framework that can guide policymakers and stakeholders in their efforts to bridge this divide and enhance the overall educational system. The collaborative and iterative nature of this research approach ensures that the proposed framework is well-informed and effectively addresses the unique context of Kabul University and similar educational institutions in Afghanistan.

### 6. CONCLUSION

In conclusion, this paper illuminates the issue of the digital divide in Afghanistan, specifically at Kabul University. The research involved open interviews with students, professors, and staff, revealing numerous factors that contribute to the digital divide, such as poor economic conditions, a lack of experts, negative attitudes, technical issues, inadequate awareness of technology, the absence of computers, inconsistent electricity and internet access, and restricted technological access for women. The main factors that hinder the use of technology in teaching and non-teaching areas are the absence of experts and awareness of technology. Moreover, the need for capacity upgrading programs was recognized as a priority for solving this problem. To address the digital divide at Kabul University, this paper recommends the use of technological devices, the establishment of technology centers, the hiring of experts, computer donations, and the provision of consistent electricity and internet access. These solutions address the identified factors, ultimately eradicating the digital divide at Kabul University. This research also recommends that Kabul University can benefit from the experiences of other developing countries to address the digital divide. Overall, this study is a valuable contribution to ongoing efforts to reduce the digital divide and promote equal access to technology in developing nations.

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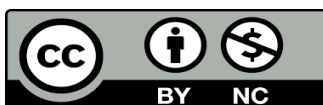
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## Evaluation Study of Physical Education Learning in Sports and Health in Special Schools in Yogyakarta



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**ABSTRACT:** This research aims to find out: (1) Evaluate the context of elementary learning tools at Yogyakarta State Special Schools, (2) Evaluate the input of elementary school infrastructure facilities at Yogyakarta State Special Schools, (3) Evaluate the process of implementing elementary school learning based on the independent curriculum at Yogyakarta State Special Schools, (4) Evaluate the assessment product for corner learning outcomes at Yogyakarta State Special Schools.

This research is an evaluation research with a qualitative approach based on CIPP. The research was carried out at SLB N 1 Bantul. Data analysis uses the best data analysis carried out from the start of the research (ongoing).

The results of the research show: (1) The results of the context evaluation including corner learning tools show that the learning tools in the four Yogyakarta state special schools fall into the category of quite good and good implementers of and realizing learning achievement tools, the flow of learning objectives and teaching modules that are determined based on independent rounds. (2) The results of evaluation input including teacher and student facilities and infrastructure show that SLB N 1 Yogyakarta and SLB N 2 Bantul are in the sufficient category to complete corner learning facilities and infrastructure based on the independent curriculum. and for SLB N 1 Bantul and SLB N Pembina Yogyakarta it has been included in the good category through the results of observations, interviews and documentation of existing resource persons in completing the corner learning process based on the independent curriculum. (3) The results of the evaluation process include the teacher's implementation of elementary learning based on the independent curriculum with teaching tools that have been created in accordance with the independent program curriculum and delivered well, effectively and efficiently to students. This category means that the implementation or flow of the representation of the corner learning process starting from the introductory, core and closing activities has been carried out well between the teacher and students. (4) The product evaluation results include student learning outcomes which show the performance of assessments carried out in a formative and summative manner on students with special needs during elementary school learning based on the independent curriculum and are said to be good even though the documentary evidence from the four special schools is only one school that provides summative assessment documents to researcher. Apart from that, everything was quite good and students listened to the material and direct assessments in the field from teacher to student.

**KEYWORDS:** Independent Curriculum, PJOK Learning, State SLB.

### I. INTRODUCTION

Education is a process of beginning the formation of a learning atmosphere for students in a plan that is consciously prepared for the skills and self-development of students.1 article 1 which states that education is a conscious and planned effort to create a learning atmosphere so that students actively develop their potential such as spiritual strength, self-control, character and intelligence, noble traits and skills needed for themselves and society (Pristiwanti, 2022, p. 7912). The Education System Law No. 20 of 2003 chapter 5 article 36, which regulates the national education system, also says that the curriculum is a set of objectives, content, learning materials, methods and arrangements used as guidelines for achieving the learning process and learning activities. In addition, at all levels the curriculum stipulated in article 36 paragraph 2 where the curriculum is developed in accordance with the principle of development according to the education unit, regional potential, and students (Rahayu, 2022, pp. 4-5). Learning physical education sports and health must adapt to the abilities of each child who is given systematically, according to the characteristics and limitations of children who are managed through the development of physical education effectively and efficiently for the formation of whole students in the limitations and disabilities they have and to measure the extent of the learning objectives of PE, requires practical management, which consists of an appropriate learning

## Evaluation Study of Physical Education Learning in Sports and Health in Special Schools in Yogyakarta

implementation model, learning methods tailored to the needs of students, so as to encourage or draw conclusions to encourage the learning process of PE with problems, topics, and concepts as a guide for student performance and provide feedback, evaluation and performance in ideal learning strategies. With the selection of materials and programs of physical education sports and health for children with disabilities into learning strategies and learning models that aim to ensure the achievement of physical education sports and health optimally (Raharjo, 2023, p. 268). So it can be concluded that optimal learning of physical education sports and health is by looking at the selection of material to be given to children with special needs according to the limitations and disabilities they have, so that it can achieve effective and efficient learning strategies and models with current adjustments. Evaluation itself is useful as a means to achieve learning development as well as to determine the extent to which learning objectives have been formulated, in this study later using an evaluation system for the planning, implementation, and assessment process as well as supporting infrastructure in learning procedures that have been regulated by the government system for the latest curriculum policy, namely the independent curriculum. so that further discussion of this research will focus on a model designed to determine the evaluation of learning physical education sports and health of the independent curriculum in schools. The purpose of this study is to determine the learning process of PE based on the independent curriculum from 4 schools as research samples and the population taken, namely sports teachers, curriculum deputies, and class teachers, and specifically for children with special needs who have limitations and disabilities in each child with disabilities. Where the characteristics of these children become an evaluation process that will be carried out in the PE learning process. Model evaluation is very important to do in determining how well the model is designed to predict a phenomenon or event that can help identify the weaknesses and advantages of the model that has been made, so that improvements can be made in developing a better model. So that the evaluation of learning physical education sports and health of the independent curriculum in SLB Negeri se-DIY is very important to ensure the quality of education in accordance with the implementation of the independent curriculum. one of the evaluation models used is the CIPP model (context, input, process, product). The CIPP model is one of the evaluation models used in this study based on the problems that have been described on learning physical education, sports and health based on an independent curriculum with the form of learning that exists in SLBN in Yogyakarta on the results of observations and observations of interviews, researchers see conditions in the learning process with the components of teachers, goals, teaching materials, facilities, and assessment of PE learning taking place using an independent curriculum, namely Students can be more independent to be able to support the talents of children with disabilities, for example during observations, researchers observed that the process and implementation of PE learning took place very well where physical education, sports and health teachers provided lessons that were interesting, challenging, and made students not bored. This is the process of learning PE during pre-observation and researcher observations. Based on the description of the problems that have been studied above, the author wants to conduct a research entitled: "Evaluation Study of Learning Physical Education Olahraga and Health Independent Curriculum in State Special Schools throughout Yogyakarta".

## II. METHOD

### Type of Research

This research is a program evaluation research with a qualitative approach based on CIPP (context, input, process, product). Evaluation research is used for information by comparing the suitability of existing conditions with predetermined criteria or standards for the learning process (Arikunto, 2010, p. 37).

According to (Bahri, 2022, p. 3), physical education sports and health of the independent curriculum, the program being evaluated is the learning of physical education sports and health of the independent curriculum in public special schools throughout Yogyakarta, program evaluation is an activity designed to determine the level of success of planned activities, in which information is systematically collected about the functions, characteristics, and results of the program in order to evaluate the program to improve program effectiveness, and make decisions regarding program effectiveness towards future development programs. effectiveness of the program towards future development programs.

### Place and Time of Research

To be able to obtain the necessary information, this research was conducted in four State SLBs in Yogyakarta, namely SLBN 1 Bantul, SLB Negeri 2 Bantul, SLB Negeri 1 Yogyakarta, and SLB Negeri Pembina Yogyakarta This research was conducted from October 16 to November 20, 2023.

2023.

### Population and Sample

The population in this study were 4 schools in Yogyakarta. The sample in this study were 7 PJOK teachers,

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4 waka curriculum because, of the four schools, they have implemented PE learning based on the independent curriculum, and the implementation of the teaching where the educators have been so optimal in implementing the independent curriculum, especially for children with special needs with the category of independent sharing options that have been determined by the central government, therefore the researchers took SLBN 1 Bantul, SLBN 2 Bantul, SLBN 1 Yogyakarta city, and SLBN Pembina which have implemented an independent curriculum with independent sharing options, as well as the implementation which gradually follows in accordance with the learning of physical education sports and health of the independent curriculum for one or two years more or less.

### Instruments and Data Collection Techniques

In the research to be carried out, the instrument used is to use the technique of data reduction technique by describing raw data into visible material so that it is packaged in the form of narration or writing in this study.

Data sources in this study were obtained through the collection of basic information. Basic information is information obtained directly through the first source of researchers (Arikunto, 2010, p. 264). From the results of the description of data from detailed data sources, in qualitative research the main data collection techniques are observation, interviews, and documentation.

### Data Analysis Technique

The data analysis technique used is descriptive qualitative. Qualitative research conducted by researchers to see the evaluation study of learning physical education sports and health of the independent curriculum in public special schools in Yogyakarta uses researchers who will go directly to the field from the analysis of secondary data obtained by researchers before entering the field, and the program used is cost and benefit, which is the financing and benefits that will be carried out for activities in schools where available income and resources are used to develop and maintain school programs obtained from conditions that vary such as national conditions, geography, educational achievement, politics and law, education economics, government funding programs and school management.

## III. RESEARCH RESULT

This research was conducted in four state SLBs in Yogyakarta namely SLBN 1

Bantul, SLB Negeri 2 Bantul, SLB Negeri 1 Yogyakarta, and SLB Negeri Pembina Yogyakarta on October 16 to November 20, 2020 The subject of this evaluation is SLB Negeri throughout Yogyakarta, totaling 4 schools. The instrument used uses data reduction techniques by describing raw data into visible material so that it is packaged in the form of narration or writing in this study. The approach used in the evaluation study of learning physical education sports and health of the independent curriculum using the CIPP model (context, input, process, product) means obtaining accurate and objective information and comparing what has been achieved through the implementation of the independent curriculum on learning physical education sports and health in special schools throughout Yogyakarta.

**Table 1. Completeness of Learning Tools**

Nama Sekolah	Variabel	Indikator	Kesesuaian	
			Ada	Tidak
SLB Negeri 1 Yogyakarta	Perangkat Pembelajaran PJOK	CP	✓	
		TP		✓
		ATP	✓	
		Modul ajar	✓	
SLB Negeri 1 Bantul Yogyakarta	Perangkat Pembelajaran PJOK	CP	✓	
		TP	✓	
		ATP	✓	
		Modul ajar	✓	
SLB Negeri 2 Bantul Yogyakarta	Perangkat Pembelajaran PJOK	CP	✓	
		TP		✓
		ATP	✓	
		Modul ajar	✓	



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SLB Negeri Pembina Yogyakarta	Perangkat Pembelajaran PJOK	CP	✓	
		TP		✓
		ATP	✓	
		Modul ajar	✓	

A gradual school education process in the learning process so that it focuses effectively and efficiently on context, input, process, and product, where the context explains the school background, vision-mission, goals, learning materials, learning tools and organizing learning tools, as well as managing the process of learning activities, input describes the characteristics of students and educators, school infrastructure and financing, the process discusses the implementation of physical education learning sports and health, and the last product explains the assessment carried out formatively and summatively as well as the end-of-semester assessment.

### IV. DISCUSSION

This study was conducted with the aim of being able to know (1) Evaluate the context of pjok learning tools in SLB Negeri Yogyakarta, (2) Evaluate the input of pjok infrastructure facilities in SLB Negeri Yogyakarta, (3) Evaluate the process of implementing pjok learning based on the independent curriculum in SLB Negeri Yogyakarta, (4) Evaluate the product of pjok learning outcomes assessment in SLB Negeri Yogyakarta.

Based on the results of the research seen from the context evaluation, it is carried out by looking at the completeness of the study tools based on the Ministry of Education and Culture Regulation Number 22 of 2016 concerning process standards for primary and secondary education, with the standard criteria for the process being the teacher's investment in planning to achieve the Graduate Competency Standards (SKL), it can be concluded that the fulfillment of teaching tools has been fulfilled, but the delivery may be a little difficult. From the table above, it can be seen that there is data that does not exist and actually fulfills all of the data above, but the time constraints and busyness of the existing subjects as sources, so that researchers only include the data obtained. to fulfill the research process on the evaluation of learning physical education sports and health in Yogyakarta state special schools. Then, from the input evaluation. The criteria for teacher background in this study are seen in accordance with the Minister of Education Regulation No. 16 of 2007 concerning the qualifications and academic qualifications of teachers. The Ministry's regulations contain the qualifications of senior high school/madrasah Aliyah teachers who have minimal fourth grade teacher training (D-IV) or primary grade (S1) with a study program that is in accordance with the department or subject being taught besides that the teacher's certificate is important to see as a form of measurement in showing how long the teacher has worked in accordance with the profession he holds and professional experience (competence) in the world of education, it can be concluded that teacher qualifications are the ability and authority of teachers in carrying out their teaching profession. Then the term professional comes from an adjective which means livelihood and as a noun experts such as teachers, doctors, judges, and others. In other words, professional work is work that can only be done by people who are specially trained in certain fields, not work that many people do because they cannot find other jobs. Sports and health physical education activities implemented in schools, is a process of teachers in providing the teaching and learning process by including the value of knowledge, attitudes and skills. And the main function in learning is to achieve learning objectives with a good and effective program. In learning pjok, of course, the core activities that are well programmed and directed in order to achieve the expected learning objectives, will be able to achieve all components of adequate pjok learning infrastructure, teachers and students to achieve learning objectives. Together achieve learning objectives. In accordance with Law number 20 of 2003 concerning the national education system in article 45, it is stated that each formal and non-formal education unit must provide facilities and infrastructure that meet, it can be concluded that the two schools for facilities and infrastructure are quite good because the condition of one school is in the middle of the city and one is in the middle of a residential area, thus making the two schools a little constrained in their sports field facilities. And for both SLBs it is good because it meets the program well and the learning objectives of pjok efficiently. Furthermore, from the process evaluation factor. Education provides a way for all individuals who can realize their full potential as learning by acquiring knowledge and skills. PJOK subjects taught at school play an important role in providing direct opportunities for students to share learning experiences, some of which are related to physical activity, sports and health. With the aim of developing skills, critical thinking, cooperation, physical fitness, emotional stability, social skills and reasoning and moral action through participation in physical activities and sports, it can be concluded that the use of process evaluation in the four special schools in Yogyakarta uses a command model, lectures, and directions from the teaching teacher, in teaching also includes a form of assignment and brief

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assessment to find information about the subjects taught in the field as a meeting for future activities. As for the reciprocity of the teacher's teaching to students during the observation, that students responded to the teacher's explanation by using sign language to them, for example, in the case of children with speech impairment the teacher gave them an example. For example, in speech deaf children the teacher gives directions for introductory, core and closing activities using the sign language of speech deaf children listed such as volleyball games with sack modifications and field tennis nets. As for the reciprocity of the students, namely following the directions given by the teacher to them, and at the end of the lesson the teacher tells them that today is good enough and next week change to other lessons that are still in athletic learning, and big ball games. From the product evaluation factor, the curriculum is a strategy that is deliberately designed to achieve several educational goals and includes goals, learning materials, and methods. The curriculum is a set of subjects or learning materials mastered by teachers and students. According to Law Number 20 of 2003 concerning the National school system of the Republic of Indonesia (Sisdiknas), educational programs are an important part of education. Therefore, the government is gradually updating the curriculum to get a comprehensive and quality education, until now a new curriculum has emerged, namely the independent curriculum, it can be concluded that summative assessment is an evaluation function that considers the results of curriculum development in the form of documents from learning that takes place in schools. The function of summative assessment is to provide relevant developments in student learning outcomes to the community with the process of curriculum development and implementation. from the above statement there is also documentation obtained by researchers from one of the special schools that is the research site for the form of student learning outcomes, namely summative assessment in the form of report cards included in the appendix of this study.

## V. CONCLUSIONS

### Conclusions

From the results of data analysis, description and discussion, the conclusions can be drawn are: 1). The results of the context evaluation covering pjok learning tools show that the preparation of learning tools, organizing tools and managing learning activities in the four State SLBs in Yogyakarta, are in the category of good enough for the implementation and delivery of learning outcome tools, the flow of learning objectives and teaching modules set based on an independent curriculum, 2). The results of the input evaluation include facilities and infrastructure for teachers, student characteristics and financing, which show that SLBN 1 Yogyakarta and SLBN 2 Bantul have entered the category quite well for the fulfillment of PE learning facilities and infrastructure based on the independent curriculum, and for SLBN 1 Bantul and SLBN Pembina Yogyakarta have entered the good category through the results of observations, interviews, and documentation of existing sources in fulfilling the PE learning process of the independent curriculum, 3). The results of the process evaluation include the implementation of teachers in learning the independent curriculum PE with adjustments to teaching tools and the implementation of physical education sports and health learning that has been made in accordance with the independent curriculum program and delivered properly, effectively and efficiently to students, in the good category for evaluating the learning of physical education sports and health of the independent curriculum at SLBN throughout Yogyakarta, 4). The results of product evaluation include student learning outcomes which show the delivery of assessments carried out formatively and summatively to students with special needs when learning PE based on an independent curriculum and categorized as good enough even though the documentary evidence from the four SLBNs in Yogyakarta is quite good. Although the documentary evidence from the four SLBs is only one school that provides summative assessment documents to researchers. Apart from that, everything is good enough and students listen to the material and direct assessment in the field from teacher to student.

### Suggestion

Based on the research conclusions above, there are several suggestions that can be conveyed, namely as follows:

1. The results of this study can be used to expand the knowledge of readers and as a reference for other researchers conducting further research to evaluate the implementation of independent curriculum physical education sports and health learning.
2. After evaluating the context, input, process, product, it can be concluded that the implementation of learning physical education for sports and health of the independent curriculum in State biased schools throughout Yogyakarta, requires some improvements to the adjustment of learning tools and learning facilities for physical education for sports and health in order to achieve good implementation of the independent curriculum.
3. Improvements at the level of planning for the implementation of physical education learning need to be carried out even better cooperation between the components of the sports teacher and the mobilizing teacher, the head of the curriculum, students, and parents

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ISSN[ONLINE]:2643-9875 ISSN[PRINT]:2643-9840

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