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Potential Application of HSFI-8 Crude Protease as Meat Tenderizer and Anticoagulant Agent



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ABSTRACT: Protease enzymes are enzymes that are able to hydrolyze peptide bonds in proteins into simple compounds. The protease enzyme used was derived from fermented sea cucumber digestive organs (HSFI-8). HSFI-8 uses meat tenderizer as well as an anticoagulant agent. The samples used were beef, chicken and tuna whose protein profile was analyzed using SDS-PAGE. Three types of meat were soaked in HSFI-8 at a concentration of 30% v/v for 3 h. In addition, protease enzymes as therapy for the treatment of CVD. The second sample, human blood, was tested for anticoagulant by Lee-White in vitro. Blood samples were treated with the addition of HSFI-8 as an anticoagulant which measured blood clotting time. The results showed that soaking beef using HSFI-8 was able to break the peptide bonds in proteins which were marked by the addition of minor protein bands. There was no change in the amount of protein bands in chicken and cob meat. The results of the anticoagulant test showed that HSFI-8 was able to prolong blood clotting time in samples given the addition of HSFI-8. Although HSFI-8 did not inhibit the clotting of the 10% EDTA anticoagulant, HSFI-8 was good as an anticoagulant.

KEYWORDS: Protease enzyme, Protein profile, Anticoagulant activity, SDS-PAGE, Lee-White method

I. INTRODUCTION

Proteolytic enzymes or proteases are enzymes that can accelerate the hydrolysis process of peptide bonds in proteins into oligopeptides and amino acids (Fazri et al., 2019). Proteases can be obtained from plants, animals or microorganisms. Microorganisms producing proteases are more potent than those from plants and animals. Microorganisms have fast growth and are able to grow on cheap media so that they are more profitable and potential. Several genera of bacteria that are known to produce proteases include *Bacillus*, *Lactococcus*, *Streptomyces*, and *Pseudomonas* (Said et al., 2012).

Advances in biotechnology use the use of protease enzymes as an alternative for the food industry, such as meat tenderizer, bread maker, cheese making, beer purifier, and protein hydrolysate (Mayasari, 2015). Peptide bonds in meat proteins can be hydrolyzed by protease enzymes because collagen fibers and muscle fibers are damaged (Kartika et al., 2019). The use of proteases in the non-food sector includes the pharmaceutical field as an anticoagulant therapeutic in overcoming thrombosis, anti-arthritis, antibacterial, and anti-inflammatory (Fuad, 2020). Protease enzymes have the ability to degrade fibrin which is formed during clotting or blood clotting so that it can be used as a therapeutic anticoagulant. Anticoagulant substances can overcome the problem of imbalance in the hemostatic system, which plays a role in regulating bleeding and blood clotting in the event of an injury such as in CVD (Cardio-vascular disease) (Akhtar et al., 2017).

Anticoagulant drugs currently used as treatment for CVD are warfarin and heparin (Al-Saadi, 2013). Based on clinical evidence showing that there are side effects from the use of heparin, such as gastrointestinal bleeding and the potential risk of viral contaminants of animal origin (Rahmawati et al., 2018). Anticoagulant activity test using the Lee-White method. The method is commonly used to determine the length of time it takes for blood to clot (Menantika et al., 2018).

Research conducted by (Hidayati, 2020) obtained the results of research on the fermentation of the digestive organs of sea cucumbers isolates HSFI-8 as a proteolytic bacterium that produces protease enzymes. evidenced by the formation of a clear zone on SMA (Skim Milk Agar) media with the IP (Proteolytic Index) value on the seventh day was 0.64 cm. HSFI-8 bacterial isolate had thrombolytic activity in vitro capable of lysing thrombus which was tested using the gravimetric method.

Research related to the use of protease enzymes as meat tenderizers and anticoagulants still needs to be done, to determine the ability of HSFI-8 protease-producing bacteria isolates as meat tenderizers and safe anticoagulants.

Potential Application of HSFI-8 Crude Protease as Meat Tenderizer and Anticoagulant Agent

II. METHOD AND MATERIAL

The ingredients used are tenderloin beef, chicken breast and tuna, bacterial strain HSFI-8 isolated from fermented digestive organs of sea cucumbers, Nutrient Agar (Oxoid), skim milk (NZMP), Brain Heart Infusion Powder, Peptone (Oxoid), NaCl (Oxoid), PBS 1X Solution, dH₂O, Biorad Protein assay (BPA), SDS 10% (10 g SDS in 100 ml dH₂O), 10% APS (0.1 g APS in 1 ml dH₂O), Electrode buffer (tris base, glycine, SDS 10%, H₂O), stacking gel (dH₂O, Acrylamide 30%, 1.5M Tris (pH 6.8), SDS 10%, APS 10%, TEMED), Separating gel (Acrylamide 30%, 1.5M Tris (pH 8.8), 10% SDS, dH₂O, TEMED, APS 10%), loading buffer (1M tris or HCl (pH 6.8), DTT, bromophenol blue or BPB, glycerin, sterile distilled water). Materials for staining (Coomassie brilliant blue 0.25 % or 0.1% (R-250), methanol, glacial acetic acid, and aquadest) and materials for de-staining (methanol, aquadest, and glacial acetic acid), Ethanol 96%, EDTA 10%.

Bacterial isolates of HSFI-8 were rejuvenated on Skim Milk Agar (SMA) media, then inoculated in Skim Milk Broth (SMB) media in a centrifuge and the supernatant was taken as crude protease enzyme. Three kinds of meat were treated by immersing crude protease for 3 h, then isolated the meat protein and analyzed the protein profile of the meat using the SDS-PAGE method. Blood samples were treated with the addition of 100 l, 500 l and 1000 l of crude protease and measured the length of time for blood clotting using a stopwatch using the Lee-White method.

III. HSFI

-8 bacterial isolates on SMA medium were measured proteolytic activity by measuring the diameter of the clear zone and the diameter of the colony from day 1 to day 4 shown in Figure 1.

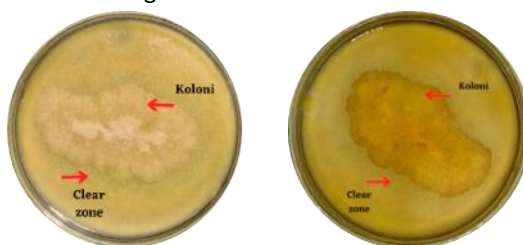


Figure 1. Test of HSFI-8 proteolytic activity on Skim Milk Agar media

Proteolytic index calculated by comparison between the diameter of the clear zone and the diameter of the bacterial growth zone (Efendi et al., 2017).

Table 1. Results of HSFI-8 proteolytic index test on skim milk agar media

Day	Diameter (mm)		
	Proteolytic zone	Colony	IP
1	17	19	1.12
2	25	29	1.16
3	35	42	1.20
4	36	48	1.33
AVG IP	1.20		

HSFI-8 bacterial isolate was inoculated on SMB media and then incubated for 48 h at 37°C. The presence of bacterial growth marked by turbidity is shown in Figure 2.

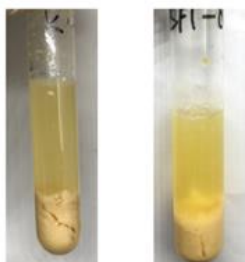


Figure 2. Bacterial inoculation on Skim Milk Broth (SMB) media. Control (1), sample suspension (2)

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HSFI-8 measured its absorbance using a spectrophotometer with a wavelength of 600 nm, to determine the concentration of crude protease HSFI-8 calculated using the linear equation $y=ax+b$.

Information:

y = Absorbance

a = Constant

x = Concentration of crude protease

b = Slope

Analysis of the total protein of beef, chicken and tuna after immersing HSFI-8 for 3 h using a spectrophotometer with a wavelength of 595 nm.

Table 2. Total meat protein

Type of Meat	Total protein ($\mu\text{g/L}$)	
	Control	Treated
Crude protease HSFI-8	0.98	
Cattle	18.45	25.13
Chicken	17.28	25.04
Tuna	27.09	27.25

According to (Kustia, 2017) determination of protein molecular weight by calculating the Rf (Retardation Factor) of each band with the following formula.

$$Rf = \frac{\text{Jarak yang ditempuh sampel}}{\text{Jarak yang ditempuh oleh pelarut}}$$

Table 3. Molecular weight of beef, chicken, cob

Sample code	Type of Band	MW (kDa)
C8	-	-
STP	Major	114, 73, 59, 46, 44, 39, 32, 29
	Minor	64
ATP	Major	101, 61, 50, 41, 34, 32
	Minor	59, 30
TTP	Major	97, 59, 50, 34, 33, 29, 28
	Minor	79, 44
SP	Major	110, 73, 59, 44, 39, 33, 30, 28
	Minor	61
AP	Major	97, 93, 59, 46, 34, 32, 29
	Minor	54, 28
TP	Major	97, 59, 48, 34, 32, 29, 28
	Minor	79, 42

Note:

C = Crude protease HSFI-8

STP = Cattle without treatment

ATP = Chicken without

TTP = Cob without

SP = Cattle with

AP = Chicken with

TP = Cob treatment

(-) = No molecular

Determination of Molecular Weight (MW) using a known Rf value, plotted on a logarithmic graph with Molecular weight of Marker which value is known. Analysis of protein profiles using the SDS-PAGE method on samples of beef, chicken and tuna soaked in crude HSFI-8 showed the following results:

Potential Application of HSFI-8 Crude Protease as Meat Tenderizer and Anticoagulant Agent

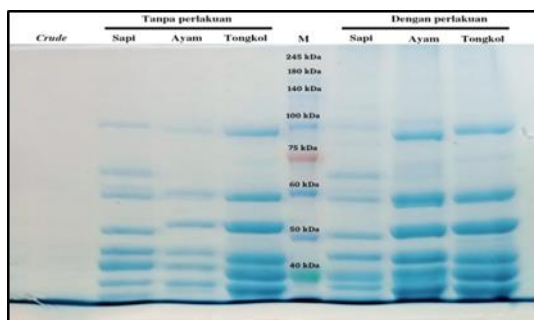


Figure 3. SDS-PAGE results for beef, chicken and milkfish without and with protease immersion treatment

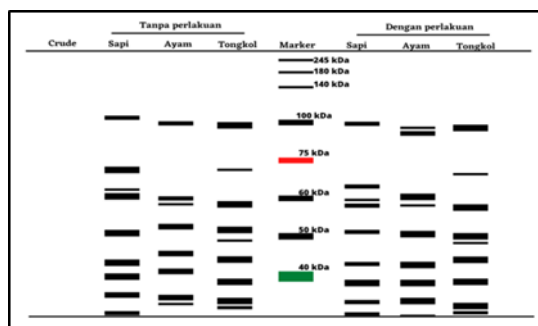


Figure 4. The results of the visualization of SDS-PAGE

Crude protease HSFI-8 were tested for anticoagulant activity using the Lee-White method. Anticoagulants are alternative materials to inhibit blood clotting in vitro (Weliyani et al., 2015).

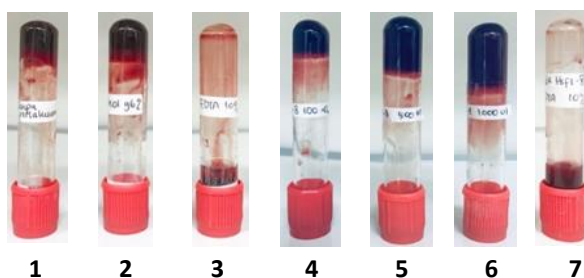


Figure 5. Anticoagulant Test Results

Description:

- Tube 1 = Untreated Blood
- Tube 2 = Blood plus 96% Ethanol
- Tube 3 = Blood plus 10% EDTA
- Tube 4 = Blood plus *crude* 100 L
- Tube 5 = Blood added *crude* 500 L
- Tube 7 = Blood plus *crude* 1000 L
- Tube 7 = Blood plus *crude* 100 L
10% EDTA

The average results of the anticoagulant test were repeated five times as shown in table 5. of anticoagulant test

Sampel code (Tube)	100 μ L (mins)	500 μ L (mins)	1000 μ L (mins)
1	06.04	05.26	06.06
2	06.32	06.18	06.38
3	∞	∞	∞
4	10.58	13.32	17.18
5	∞	∞	∞

Potential Application of HSFI-8 Crude Protease as Meat Tenderizer and Anticoagulant Agent

Note =

Tube 1 = Blood without Treatment

Tube 2 = blood with 96% ethanol added.

Tube 3 = blood with 10% EDTA added;

Tube 4 = Blood added *Crude* protease HSFI-8

Tube 5 = Blood added with 10% EDTA and *crude*
protease HFSI-8

∞ = Infinite

IV. DISCUSSION

Protease enzymes are enzymes that have the ability to hydrolyze or destroy protein biomolecules into smaller and simpler compounds. This study aims to determine the protein profile of beef, chicken and tuna soaked in *crude* protease for 3 h using the SDS-PAGE method. Based on the calculations, the protein concentration of *crude* protease-soaked meat after being analyzed using spectrophotometry obtained a higher concentration value than the control meat. This is due to the protein content in the *crude* protease HSFI-8 which seeps into beef, chicken and tuna, thereby increasing the protein concentration after treatment (Astuti *et al*, 2012).

The mechanism of action of protease enzymes is by breaking protein molecules through protein hydrolysis activity or protein denaturation. The protease enzyme first works by destroying the mucopolysaccharide layer, the matrix of the basic protein substance, then goes to the connective tissue fibers on the inside. During this process, the collagen and myofibril network will be damaged and result in breaking the bonds between the fibers in the meat and the process of breaking the fiber fragments into shorter ones, causing the meat texture to become softer (Lismawati *et al.*, 2017).

The results showed that *Crude* protease HSFI-8 did not have major and minor bands (shown in Table 3) due to the impure protease enzyme and known to have low protein concentrations so that the protein bands on SDS PAGE were not visible. Beef with *crude* protease soaking for 3 h did not show any change in the protein profile compared to the control. Chicken meat with *crude* protease soaking for 3 h showed the presence of a new major band with a molecular weight of 93 kDa with thicker characteristics than chicken meat without treatment. This difference was due to the different molecular weights of the proteins inserted into the polyacrylamide gel wells. The protein weight of beef with soaking treatment showed higher protein weight than control chicken meat, while the cob meat with soaking for 3 h did not show any change in protein profile when compared to the control.

In addition to analysis as a meat tenderizer, this study also aims to determine the ability of the anticoagulant activity of *crude* protease HSFI-8 to inhibit blood clotting. anticoagulant test using the Lee-White method, the addition of *crude* able to prolong the clotting time by 10.58 mins. Blood with the addition of *crude* was able to prolong the clotting time by 10.58 mins. Blood with the addition of *crude* was able to prolong the clotting time of 17.18 mins. Normal blood clotting period in humans is between 5-10 mins (Menantika *et al.*, 2018).

V. CONCLUSIONS

Crude protease HSFI-8 cannot be used as a meat tenderizing agent, but has activity in inhibiting the blood clotting process because it is able to prolong the blood clotting period beyond the normal value so that it has potential as anticoagulant agent. Further anticoagulant testing as well as enzyme purification need to be carried out in order to produce better proteolytic and anticoagulant activities.

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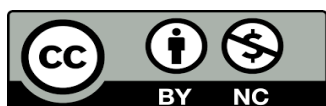
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REFERENCES

- 1) Akhtar, T., Hoq, M., and Mazid, A. 2017. *Bacterial Proteases as Thrombolytics and Fibrinolytics*. Dhaka Univ. J. Pharm. Sci, 16(2), pp. 255–269.
- 2) Al-saadi, N. 2013. *In vitro study of the anticoagulant activity of some plant extracts In vitro study of the anticoagulant activity of some plant extracts Narjis Hadi Mansoor Al-Saadi*, (March), pp. 14–17. doi: 10.15373/2249555X/JULY2013/32.
- 3) Astuti, S., Mustikaningrum, M. and Haryati, M. (2012) 'Manufacturing of sweet soy sauce from tuna (*Euthynnus Affinis*) waste', 2(2), pp. 36–41.

Potential Application of HSF1-8 Crude Protease as Meat Tenderizer and Anticoagulant Agent

- 4) Efendi, Y., Yusra, & Efendi., VO 2017. Optimization of the Potential of *Bacillus Subtilis* Bacteria as a Source of Protease Enzymes. Indonesian Journal of Aquatics Vol. 2 No. pp. 87-94.
- 5) Fachtiyah, EL, Widyarti, S and Rahayu, S. 2011. Molecular biology basic principles of analysis. Jakarta (Indonesia): Erlangga
- 6) Fazri, M., Kartika, AI, Darmawati, S. and Ethica, SN 2019. "Isolation and Molecular Identification of *Staphylococcus Epidermal* in Windu Shrimp Rusip (*Penaeus Monodon*) After 24 H of Fermentation Based on the 16S RNA Gene Sequence." *Proceedings of Unimus National Seminar Students* 1(2): 208–16.
- 7) Fuad, H. 2020. Isolation and Biodiversity Analysis of Fibrinolytic Enzyme-Producing Bacteria in the Muscle Tissue Rusip Products of Sand Sea Cucumbers (*Holothuria scabra*) as Antithrombotic Agents. Thesis. Muhammadiyah University of Semarang.
- 8) Hidayah, L. 2013. Bromaline Enzyme Activity Test and Papain Enzyme Test. Department of Animal Husbandry Jember.
- 9) Hidayati, N. (2020) Isolated digestive organ fermented sea cucumber (*Holothuria scabra*) as a thrombolytic agent. Thesis. Muhammadiyah University of Semarang.
- 10) Kartika, AI, Kusuma, HS, Darmawati, S and Tanjung, DS 2019. "Microstructural and Proteomic Analysis to Investigate the Effectiveness of Papaya Leaf as a Tenderizer of Beef and Goat's Meat." *IOP Conference Series: Earth and Environmental Science* 292(1).
- 11) Kustia, N., Darmawati, S. and Wardoyo, FA 2017. "Protein profile of three types of meat covered with SDS-PAGE-based papaya leaf powder": National Seminar on Education, Science and Technology. 51–58.
- 12) Lismawati, Razali, R. & Ferasyi, TR (2017) 'The Softening Power of Papaya Leaf Extract (*Carica papaya*) and Pineapple Fruit Extract (*Ananas comosus*) Against Chicken Thigh Meat Assessed From Breaking Power and Microscopic Appearance (*Papaya leaf extract*) and fruit pineapple extract (*Ananas comosu*', *Scientific Journal of Veterinary Students*, 1(4), pp. 788–793.
- 13) Menantika, D. (2018) 'Results of Clotting Time (Lee and White) Blood Clotting Method'. pp. 4–9. Thesis, Faculty of Nursing and Health, University of Muhammadiyah, Semarang.
- 14) Rahmawati, Fawwaz, M., Razak, R. And Islamiati, U. (2018) "Potential of Anticoagulant Garlic Extract (*Allium sativum*) Using *Lee-White* and Blood smear. *Pharmaceutical Magazine*." Vol. 14, No. 1, 42-48
- 15) Said, M. and Likadja, J. (2012) 'Isolation and identification of bacteria that have the potential to produce protease enzymes in the leather tanning industry of PT. Adhi Satria Abadai (ASA) , Yogyakarta', pp. 121–128.
- 16) Weliyani, Nugroho, R., A., Syafrizal, (2015): Anticoagulant Activity Test an Extract of Propolis *Trigona laeviceps* Against the Blood of Mice (*Mus musculus* L.), *Proceedings of the Seminar on Science and Technology FMIPA Unmul*, 1-10.



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Instructional Behavior, Innovative Teaching Practices, Work Engagement, and Self-Efficacy of Physical Education Teachers



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ABSTRACT: The study determined the instructional behaviour, innovative teaching practices, work engagement, and self-efficacy of Physical Education teachers in private Higher Education Institutions in SOCCSARGEN in facilitating Rhythmic Activities. It also determined the significant relationship of the dependent variables towards the self-efficacy of Physical Education teachers in facilitating Rhythmic Activities. This study employed a descriptive correlation analysis method with qualitative data to describe the variables and the relationships that occur naturally between and among them. The data were gathered through a survey questionnaire and administered to 100 PE teachers who are teaching Rhythmic Activities. The data gathered were analyzed through weighted mean and Pearson r correlation. An interview was also conducted by the researcher to further investigate the underlying problem and to confirm and intensify the findings of the study. The results of the study revealed that generally, the instructional behaviour, innovative teaching practices, work engagement, and self-efficacy of Physical Education teachers were high in extent. However, there were specific areas that were found to be weak and need improvement. The findings of the study also revealed that there was a very high positive significant relationship between the dependent variables towards self-efficacy. Meanwhile, in terms of the significant difference in the extent of self-efficacy across the profile of the respondents, the result reveals that there are no differences or there are no fine distinctions when it comes to their self-efficacy in facilitating rhythmic activities. Given the overall results, the study had recommended that a professional training program which was formulated based on the findings of the study.

KEYWORDS: Instructional Behavior, Innovative Teaching Practices, Work Engagement, Self-Efficacy

I. INTRODUCTION

Physical education is distinct from general knowledge studies, focusing on physical activity. Mainly teaching rhythmic activities can be challenging because of the unique "classroom" management situations that often arise from the dynamic nature of the content. Dance and movement to music are employed in Physical Education (PE) for various reasons: to stay in shape, express feelings and moods, and learn about many cultural heritage types. Dance can help students improve their psychomotor skills and sense of self-expression, aesthetics, and sentiments expressed through movement (Gibbs, Quennerstedt, & Larsson, 2017). However, teaching dance to students in physical education requires a great deal of preparatory work, even more so if teachers are insecure about their dancing abilities. Physical education sessions necessitate preparation, operation, and practice of skills to work correctly.

A study was conducted in Sweden to determine how many countries deal with dance. In the study undertaken by Lundvall and Meckbach (2008), as cited by Gibbs, Quennerstedt, and Larsson (2017), it was found that many Physical Education teachers think their capacity to teach dance is restricted. They are unsure about their competency in dance and ability to genuinely teach the subject, which also resonates with other researchers' conclusions about teaching dance in general. Simply put, many PE teachers devote little time to dancing because they cannot dance themselves, so their teaching is pedagogically constrained. Though many teachers use innovative and unique methods to teach dance, like the use of digital technologies, teaching dance, on the other hand, is frequently associated with dance skills rather than pedagogy and creative teaching (Lundvall and Meckbach, 2008, as cited by Gibbs, Quennerstedt, & Larsson, 2017). The value of digital instructional resources is not dependent on technology. Instead, integrating technology puts a lot of pressure on the instructor to design how teachers use games in the classroom. In addition, research in New Zealand, according to Renner and Pratt (2017), has focused on a broader measure of confidence among teachers, which reported low to medium confidence in teaching dance, consistent with the Australian

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findings (e.g., Beals et al., 2003). Teachers' confidence in their ability to devote constant or in-depth attention to dance is influenced by their perceived competence in teaching dance, a lack of resources, the expansion of the school curriculum, and timelines that left little time for preparation (Ashley, 2010; Beals et al., 2003; Buck, 2003; Cadzow, 2008; Snook, 2012).

The world is still suffering from a disastrous scenario caused by the COVID-19 pandemic, the abrupt shift in class delivery from face-to-face to online has even made it more challenging for instructors to adapt their conventional pedagogies. Online physical education classes were a new experience for teachers and students. The sudden shift to online classes left teachers unprepared and struggling with unfamiliar teaching methods, forcing them to resort to trial-and-error approaches. Inadequate online teaching strategies and low teacher and student readiness for online classes made the transition difficult. It became evident that teaching, which shifted from face-to-face to virtual communication in a matter of hours, was a circumstance for which teachers were unprepared (Varea, Gonzales, & Garcia, 2020). Due to a lack of training, teachers lacked skills in remote PE education and resorted to "trial-and-error" tactics (Jeong & So, 2020).

In fact, in a survey of Physical Education instructors in Manila public schools conducted by Aguinaldo (2021), unreliable internet connections, a lack of room and equipment, limited student participation, and difficulty correcting students' execution were among the challenges they faced in online sessions. Due to the subject's particular nature: the importance of completing physical actions, restricted area, time, and training, among other things (Villalba & González, 2016), the epidemic posed significant obstacles for teachers. Online lessons have become a substantial disadvantage due to students' limited transfer of skills and knowledge. Students did not learn motor skills in the same study as Daum and Buschner, and their involvement in class was little. As a result, online practical programs are challenging to teach and learn for both instructors and students (Yu & Jee 2017).

Understanding the initial experiences of teachers in moving to a remote learning environment and identifying the challenges and facilitators to successful remote instruction is needed to help teachers and other PE professionals with their needs and design. Moreover, compelling learning experiences, despite the pandemic, still present a unique situation, depleting creative ideas and fantastic learning possibilities among administrators, teachers, and students (Centeio, Mercier, Garn, Erwin, Marttinen, & Foley, 2021).

In an initial interview conducted by the researcher among selected PE teachers in General Santos City, the following factors affecting one's self-efficacy were identified: feeling of ineffectiveness due to distance education and overloaded work that hampered the time for training (E. Villaganas, personal communication, December 8, 2021), reduced physical activities and short training programs due to COVID-19 and lack of drive and enthusiasm in learning new dances pandemic (N. Barsatan, personal communication, November 27, 2021), weight gain which resulted to difficulty in performing specific skills (A. Cunanan, personal communication, February 10, 2022), and low confidence due to lack of expertise in teaching dance and experience in the field of teaching (S. Trumpet, personal communication, February 10, 2022). Considering the skill-based nature of PE and the education shift, Physical Education teachers must spend time and effort on skill demonstrations and evaluations to facilitate students in rhythmic activities.

The main aim of this study was to determine the self-efficacy of Physical Education teachers among private Higher Education Institutions (HEI) in South Cotabato, Cotabato Province, Sarangani, and General Santos City (SOCCSARGEN). By letting the teachers assess how they think of themselves, the researcher would like to come up with a professional training program for teachers facilitating rhythmic activities to improve and create more comprehensive ideas in developing efficient and effective PE instruction and which could also serve as an excuse to weave an innovative educational model.

II. TABLE

Table 1. Profile of The Respondents

Indicators	Frequency	Percent
Age		
20-25	51	51
26-30	26	26
31-35	11	11
36-40	3	3
41-45	4	4
46-50	3	3
51-55	1	1
56-60	1	1
TOTAL	100	100

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Sex		
Male	38	38
Female	62	62
TOTAL	100	100
Educational Attainment		
BSED MAPEH/BPED	48	48
MAED-PE Level	29	29
Non-MAED-PE Level	10	10
MAED-PE Graduate	6	6
Non-MAED-PE Graduate	4	4
PhD/EdD-PE Level	3	3
TOTAL	100	100
Number of Years in Teaching		
Less than 5	62	62
5-10	26	26
11-15	5	5
16-20	2	2
21-25	3	3
26 and above	2	2
TOTAL	100	100

Table 2. Instructional Behaviour of the Respondents

Indicators	Mean	Interpretation
Clarity of instructions	4.32	High in Extent
Classroom Management	4.43	High in Extent
Teacher Control in Learning Activities	4.37	High in Extent
Interpersonal Behavior	4.39	High in Extent
Overall Mean	4.38	High in Extent

Table 3. Innovative Teaching Practices of the Respondents

Indicators	Mean	Interpretation
Concepts of Rhythmic Activities	4.36	High in Extent
Nature and Background of the Rhythmic Activities	4.39	High in Extent
Dance Terminologies	4.42	High in Extent
Dance Genre	4.43	High in Extent
Overall Mean	4.40	High in Extent

Table 4. Work Engagement of the Respondents

Indicators	Mean	Interpretation
Productivity	4.33	High in Extent
Commitment	4.53	Very High in Extent
Concentration	4.47	High in Extent
Overall Mean	4.44	High in Extent

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Table 5. Self-Efficacy of the Respondents

Indicators	Mean	Interpretation
Playful Experience	4.42	High in Extent
Dance Appreciation	4.38	High in Extent
Developing Connections	4.36	High in Extent
Creative Exploration	4.29	High in Extent
Skill Refinement	4.27	High in Extent
Dance Performance	4.45	High in Extent
Overall Mean	4.36	High in Extent

Table 6. Summary Table For The Test For Significant Relationship

x	y	Measure of Correlation	r	Interpretation	Significance at 5%
Instructional Behavior	Self-Efficacy	Pearson r	0.83	Very High Positive Relationship	Significant
Innovative Teaching Practices	Self-Efficacy	Pearson r	0.90	Very High Positive Relationship	Significant
Work Engagement	Self-Efficacy	Pearson r	0.82	Very High Positive Relationship	Significant

Table 7. Summary Table for the test/s for significant difference

Variables	Groupings	Statistical Test	Sig	Decision
Self-Efficacy	Age	One-Way ANOVA	0.95	No Significant Difference
	Sex	One-Way ANOVA	0.88	No Significant Difference
	Educational Attainment	One-Way ANOVA	0.57	No Significant Difference
	Number of Years in Teaching	One-Way ANOVA	0.97	No Significant Difference

V. CONCLUSIONS

1. The Profile of the Respondents

There are 100 respondents in the study. The age group between 20-25 has the highest frequency of 26 and the least frequency belonged to the age bracket of 51 -55 and 56-60 which both had a frequency of 1. There were 62 females which accounted for 62% while only 38 or 38% are males. Most of them are BSED MAPEH/BPED graduates equivalent to 48% while the least is with Ph.D./EdD-PE Level with only three (3) respondents. It also shows that most of the respondents have less than five (5) years of teaching experience which is equivalent to 62%, and both 16-20 and 26 and above years with only two (2) or 2% of the population.

2. The extent of Instructional Behavior

The extent of Instructional Behavior Teachers' clarity of instruction, classroom management, teachers' control in learning activities, and interpersonal behavior all got a mean interpreted as High in Extent. However, among the indicators, these were

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the areas found to have the lowest means supported by the data gathered from the teachers during the interview: giving students strategies on how to do the work in the class, making sure that tasks and activities are organized and scheduled on time, initiating and filling in students' learning activities, allowing students to operate freely and independently and completing learning activities by their own initiative, and allotting time for the teacher-student conference.

3. The extent of Innovative Teaching Practices

Teachers' innovative teaching practices in terms of concept, nature and background, dance terminologies, and dance genres are generally High in Extent. However, among the indicators, these were the areas that were found to be weak based on the data gathered from the survey and interview: using game-based learning platforms such as Quizizz, WordWall, and Kahoot as a tool for assessment, designing an engaging flipped classroom to enrich learning, cultivating students' skills through dance composition and interpretation, cultivating students' skills through dance composition and interpretation, and demonstration of the skills to clearly see the correct execution of the dance steps.

4. The extent of Work Engagement

Teachers' productivity, commitment, and concentration are generally High in Extent. All the indicators got a mean labelled also as High in Extent and were proven true during the interview. This only implies that the teachers have a high efficiency to produce outputs, have the dedication to providing an effective learning environment, and have a high level of good behavior, work ethics, and willingness to help to produce a high quality of work.

5. The extent of Self-Efficacy of PE Teachers

In self-efficacy, the overall mean is 4.36, described as High in Extent. Among all the indicators, these were the weak areas in the teachers' self-efficacy based on the quantitative and qualitative data gathered by the researcher: using isolated rhythmic activities and games (drumming, stomping, self-guided rhythm games), challenging students to use the same dance moves to a variety of different songs, teaching students the dance vocabulary to create or perform a dance, conducting a teacher or peer-review to refine what is important to allow for the physical integration of skills, mounting a final practicum activity for students to perform their dance with, demonstrating and performing the skills or dance steps that students will follow. Overall, the participants rate their self-efficacy from low to moderate in terms of teaching Rhythmic Activities due to problems like limited knowledge of the skills of various dances and basically the lack of skills to perform them.

6. Relationship Among the Variables

Using Pearson r , the result of the instructional behavior, innovative teaching practices, and work engagement towards self-efficacy denotes a very high positive correlation. It, therefore, means that the three independent variables influence the self-efficacy of Physical Education Teachers in facilitating Rhythmic Activities. This relationship revealed that the more extensive the instructional behavior, innovative teaching practices, and work engagement will result in higher self-efficacy.

7. The difference in Self-Efficacy Across their Demographic Profile

In the significant difference in the self-efficacy of the respondents across sex, age, educational attainment, and the number of years in teaching using the One-Way Analysis of Variance (ANOVA), it was found that there is no significant difference between the profile and the self-efficacy of PE teachers. It only shows that the participants share the same experiences or there is no fine distinction in teaching the subject matter regardless of their profile or background.

8. A Professional Training Program

The professional training program was aligned with the results on the extent of instructional behavior, innovative teaching practices, work engagement, and self-efficacy of Physical Education (PE) teachers in facilitating Rhythmic Activities to enhance the teachers' expertise on the subject matter as well as their instructional strategies and methods. All in all, there are eleven (11) concerns that the program intends to address. This program consists of a training program and a matrix designed to address the factors affecting the facilitating skills of Physical Education (PE) teachers. The program presented the goals, baseline data, objectives, strategies, success indicators, time frame, budget, and mode of evaluation. This also includes procedures, activities, and projects created to increase teachers' professional expertise, instructional techniques, and teaching attitudes in order to enhance students' learning. The main goal of these workshops is to keep instructors current in their field.

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REFERENCES

- 1) Barni, D., Danioni, F., & Benevene, P. (2019). Teachers' Self-Efficacy: The Role of Personal Values and Motivations for Teaching. *Front. Psychol.* 10:1645. doi: 10.3389/fpsyg.2019.01645
- 2) Blackwell J., Miksza P., Evans P., & McPherson GE (2020). Student Vitality, Teacher Engagement, and Rapport in Studio Music Instruction. *Front. Psychol.* 11:1007. doi: 10.3389/fpsyg.2020.01007
- 3) Bos-Nehles, A., Renkema, M., & Janssen, M. (2017), "HRM and innovative work behaviour: a systematic literature review", *Personnel Review*, Vol. 46 No. 7, pp. 1228-1253. <https://doi.org/10.1108/PR-09-2016-0257>
- 4) Centeio, E., Mercier, K., Garn, A., Erwin, H., Marttinen, R., & Foley, J. (2021). The Success and Struggles of Physical Education Teachers While Teaching Online During the COVID-19 Pandemic, *Journal of Teaching in Physical Education*, 40(4), 667-673. Retrieved Oct 13, 2021, from <https://journals.humankinetics.com/view/journals/jtpe/40/4/article-p667.xml>
- 5) Chan, E., Ho, S., Ip, F., & Wong, M. (2020). Self-Efficacy, Work Engagement, and Job Satisfaction Among Teaching Assistants in Hong Kong's Inclusive Education. *SAGE Open*. <https://doi.org/10.1177/2158244020941008>
- 6) Cicekci, M. & Sadik, F. (2019). Teachers' and Students' Opinions About Students' Attention Problems During the Lesson. *Journal of Education and Learning*, Vol. 8, No. 6; 2019. 10.5539/jel.v8n6p15
- 7) Claver, F., Martínez-Aranda, L. M., Conejero, M., & Gil-Arias, A. (2020). Motivation, Discipline, and Academic Performance in Physical Education: A Holistic Approach From Achievement Goal and Self-Determination Theories. *Frontiers in psychology*, 11, 1808. <https://doi.org/10.3389/fpsyg.2020.01808>
- 8) Deiry, A. (2021). The Difficulties Which Face Physical Education in a Playing the Activity Curricula from Their Point of View in the Directorate in Irbid District. *Archives of Nutrition and Public Health* 3(1).Volume 3 Issue 1
- 9) Donker, M., Gog, T., Goetz, T., Roos, A., & Mainhard, T. (2020). Associations between teachers' interpersonal behavior, physiological arousal, and lesson-focused emotions, *Contemporary Educational Psychology*, Volume 63, DOI: <https://doi.org/10.1016/j.cedpsych.2020.101906>.
- 10) Emunemu, B. & Isuku, E. (2012). Improving teacher productivity and performance for better learning outcomes in Nigerian public secondary schools. Volume 5. 53-71

Instructional Behavior, Innovative Teaching Practices, Work Engagement, and Self-Efficacy of Physical Education Teachers

- 11) George, T. (2022). What is a Focus Group | Step-by-Step Guide & Examples. Retrieved from <https://www.scribbr.com/methodology/focus-group/>
- 12) Gibbs, B., Quennerstedt, M., & Larsson, H. (2017). Teaching dance in physical education using exergames. *European Physical Education Review*, 23(2), 237–256. <https://doi.org/10.1177/1356336X16645611>
- 13) González-Calvo, G., Barba-Martín, R. A., Bores-García, D., & Hortigüela-Alcalá, D. (2021). The (virtual) teaching of physical education in times of pandemic. *European Physical Education Review*. <https://doi.org/10.1177/1356336X2111031533>
- 14) Grube, D., Ryan, S., Lowell, S. & Stringer, A. (2018) Effective Classroom Management in Physical Education: Strategies for Beginning Teachers, *Journal of Physical Education, Recreation & Dance*, 89:8, 47-52, DOI: 10.1080/07303084.2018.1503117
- 15) Hariri, H. & Sumintono, B. (2020). Teacher Commitment to Teaching. Retrieved Oct. 6, 2021 from <https://oxfordre.com/education/view/10.1093/acrefore/9780190264093.001.0001/acrefore-9780190264093-e-697>
- 16) Jeong, H. C., & So, W. Y. (2020). Difficulties of Online Physical Education Classes in Middle and High School and an Efficient Operation Plan to Address Them. *International journal of environmental research and public health*, 17(19), 7279. <https://doi.org/10.3390/ijerph17197279>
- 17) Jong, P.J. & Den Hartog, D. (2010). Measuring Innovative Work Behavior. *Creativity and Innovation Management*. 19. 10.1111/j.1467-8691.2010.00547.x
- 18) Khanshan, S.K., Yousefi, M.H. (2020). The relationship between self-efficacy and Instructional practice of in-service soft disciplines, hard disciplines and EFL teachers. *Asian. J. Second. Foreign. Lang. Educ.* 5, 1 (2020). <https://doi.org/10.1186/s40862-020-0080-8>
- 19) Kico, I., Grammalidis, N., Christidis, Y., & Liarokapis, F. (2018). Digitization and Visualization of Folk Dances in Cultural Heritage: A Review. *Inventions*, 3(4), 72. doi:10.3390/inventions3040072
- 20) Levenberg, M., Armstrong, T. & Johnson, I. (2020). Teaching Dance for Understanding: Reconceptualizing Dance in Physical Education, *Journal of Physical Education, Recreation & Dance*, 91:6, 3-7, DOI: 10.1080/07303084.2020.1770519
- 21) Lodge, J.M., Kennedy G., Lockyer, L, Arguel, A & Pachman, M (2018) Understanding Difficulties and Resulting Confusion in Learning: An Integrative Review. *Front. Educ.* 3:49. doi: 10.3389/educ.2018.00049
- 22) Ma, Y. (2022) The Effect of Teachers' Self-Efficacy and Creativity on English as a Foreign Language Learners' Academic Achievement. *Front. Psychol.* 13:872147. doi: 10.3389/fpsyg.2022.872147
- 23) Majumder, A. & Chetty, P. (2018). Focus group interviews: qualitative or quantitative?. Retrieved from <https://www.projectguru.in/focus-group-interviews-qualitative-quantitative/?fbclid=IwAR2wdTAGLPX5A0ZziIWKc8SMMZR-AZESiEltleiWguKRiPVvdADnafPITKHA>
- 24) Maulana, R. & Opendakker, M.C. & Bosker, R. (2016). Teachers' instructional behaviors as important predictors of academic motivation: Changes and links across the school year. *Learning and Individual Differences*. 50. 147-156. 10.1016/j.lindif.2016.07.019.
- 25) Misbah, Z., Gulikers, J., Widhiarso, W., & Mulder, M.. (2021) Exploring connections between teacher interpersonal behaviour, student motivation and competency level in competence-based learning environments. *Learning Environ Res* (2021). <https://doi.org/10.1007/s10984-021-09395-6>
- 26) Rahiminia, E., Yazdani, S. & Rahiminia H. (2018). Factors Affecting Concentration and Attendance in the Classroom from Students' Point of View in Qom University of Medical Sciences, *Educ Res Med Sci*. 2019 ; 8(2):e93075. doi: 10.5812/erms.93075
- 27) Renner, S. & Pratt, K. (2017). Exploring primary teachers' self-efficacy beliefs for teaching dance education. *Issues in Educational Research*, 27(1), 115-133. <http://www.iier.org.au/iier27/renner.pdf>
- 28) Ripalda, M. (2019). Dance and Choreography Competence of University Physical Education Teachers. *European Journal of Physical Education and Sport Science*. Volume 5, Issue 9. <https://doi.org/10.5281/zenodo.3334755>
- 29) Shi, X., Yu, Z., & Zheng, X. (2020). Exploring the Relationship Between Paternalistic Leadership, Teacher Commitment, and Job Satisfaction in Chinese Schools. *Frontiers in psychology*, 11, 1481. <https://doi.org/10.3389/fpsyg.2020.01481>
- 30) Shu, K. (2022). Teachers' Commitment and Self-Efficacy as Predictors of Work Engagement and Well-Being. *Frontiers in psychology*. <https://doi.org/10.3389/fpsyg.2022.850204>
- 31) Trowers, A. (2020). Teacher Self-Efficacy in a Multicultural Alternative Education Program. St. John's University
- 32) Varea, V., Calvo, G. & García-Monge, A. (2020) Exploring the changes of physical education in the age of Covid-19, *Physical Education and Sport Pedagogy*, DOI: 10.1080/17408989.2020.1861233

Instructional Behavior, Innovative Teaching Practices, Work Engagement, and Self-Efficacy of Physical Education Teachers

- 33) Vazou, S., Klesel, B., Lakes, K.D. & Smiley A (2020) Rhythmic Physical Activity Intervention: Exploring Feasibility and Effectiveness in Improving Motor and Executive Function Skills in Children. *Front. Psychol.* 11:556249. doi: 10.3389/fpsyg.2020.556249
- 34) Xiong, Y., Sun, X. Y., Liu, X. Q., Wang, P., & Zheng, B. (2020). The Influence of Self-Efficacy and Work Input on Physical Education Teachers' Creative Teaching. *Frontiers in psychology*, 10, 2856. <https://doi.org/10.3389/fpsyg.2019.02856>
- 35) Yu, H., Liu, P., Huang, X., & Cao, Y. (2021). Teacher Online Informal Learning as a Means to Innovative Teaching During Home Quarantine in the COVID-19 Pandemic. *Frontiers in psychology*, 12, 596582. <https://doi.org/10.3389/fpsyg.2021.596582>
- 36) Zheng, X., Shi, X., & Liu, Y. (2020). Leading Teachers' Emotions Like Parents: Relationships Between Paternalistic Leadership, Emotional Labor and Teacher Commitment in China. *Frontiers in psychology*, 11, 519. <https://doi.org/10.3389/fpsyg.2020.00519>
- 37) Wang, Z. (2022). Modern social dance teaching approaches: Studying creative and communicative components. *Thinking Skills and Creativity*, 43, 100974. doi:10.1016/j.tsc.2021.100974



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Values Formation within the Family as an Antecedent of Civic Participation



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ABSTRACT: Values formation during childhood is crucial in the development of children which serves as the basis of their behavior and actions outside the family and in later life. 131 volunteers of UPLB Ugnayan ng Pahinungód were selected as the sample of this study to understand how values formation in childhood translates to civic participation. Using explanatory sequential design, this research gathered data in two phases. Quantitative phase used Volunteer Functions Inventory (VFI) to determine the motivations of the respondents to volunteer while the Scales of Parenting Styles (SPS) assessed the parenting styles of the respondents' parents. Data was analyzed using descriptive quantitative analysis. Six participants were chosen for the qualitative phase and their cases were analyzed using thematic analysis. Results highlighted the importance of values formation during childhood in the learning and practice of values associated to civic participation. Parents played important roles as models of desired behaviors and socializing agents through their parenting styles and practices as well as extended childcare. Modeling and practice of behavior through family socialization contributed to their positive development. Volunteers were motivated to participate in civic activities to seek understanding of social issues and real-life situations of Filipinos anchored by their values and high regard for humanity and life. Definition of civic participation based from their experiences was also presented in the results. Main values components of civic participation are *pakikipagkapwa*, *malasakit*, and *pananagutan* which are recommended to be embedded in the family's core values to contribute to the development of children's sense of civic duty.

KEYWORDS: Values formation, civic participation, prosocial behavior, volunteering, parenting styles, Pahinungód

INTRODUCTION

People behave in a manner that is acceptable in the environment they socialize with. They are taught how to talk appropriately to someone, offer help when needed, and treat them with respect. These are just some of the behaviors which are deeply rooted from shared values that have been set as standard ways of actions in dealing with people and situations. Goode & Jones (2008) [1] emphasized that values form the basis for beliefs, norms, behaviors, and practices for any cultural group. Values are any attitude or behavior that is thought to be growth-promoting for the self and others; an exemplar, or standard of conduct (Hall, 2008) [2]. They define what is right or wrong and good or bad, develops early in life, and are imparted by direct experiences with people (Moore & Asay, 2018) [3]. It varies too from one group to another since different communities hold different values, all depending on what is internal to the group. It is then shared within the society composing of various families. The family then, headed by the primary caregivers or parents, are the main agents responsible for forming the foundation of values of individuals at an early age. Values act as guiding principles in shaping children's behavior. For parents, they integrate their key cultural understandings and beliefs, those held high in esteem, about the nature and meaning of parenthood, child development, and desired behaviors and use them as patterns of their child-rearing practices (Goode & Jones, 2008) [1]. Parents instill values and help children understand their environment as preparation for future socialization outside the family because as Bronfenbrenner (1979) [4] emphasized, children's environment is vast and composed of various contributing factors that have their roles to play in the development. So as early as infancy, parents set a learning environment for their children by teaching them values that will

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help them adapt and socialize with the community outside the family. This supports Small and Eastman's (1991) [5] study on family relations which proved that strong, established support systems in childhood can promote positive adjustments in later life. Although values are the basis of development throughout the lifespan (Hall, 2008) [2], it is important to have a critical understanding of how these values are formed and established which then lead to the focus on values formation in early ages. But first, in limiting the confusion between values and moral behavior, it is imperative to distinguish one from the other. Values, as mentioned earlier, serve as standards of actions in a given situation while moral behavior is governed by values deeply held by an individual. Therefore, morals act as a system of beliefs formed out of one's core values wherein experiences also give contribution and influence. Moral development could happen as early as 18 months where children start to learn and experience emotions such as empathy and learn to help others through socialization with parents and the family (Dunn, 1988 [6]; DiLalla, Mullineaux, & Biebl, 2012 [7]). Hall (2008) [2] stated that during the first two years of life, children observe parents, siblings, teachers, and peers as models of behaviors.

An early definition of observational learning or modeling by Shaw & Constanzo (1982) [8] said that the acquisition of behavior based on the observation of another person's behavior and of its consequences for that person. Models are those individuals who are being observed which are mostly parents, teachers, and other people children look up to. Identification is where one adopts behavior, beliefs, values, and attitudes from a model. It does not necessarily mean a child would immediately do it, but actions and behavior could take place whenever they experience a similar situation. It is different from imitation in a way that patterns of behavior, motivation, and thought are incorporated, and it is based on strong emotional ties with the model while imitation is just basically copying a behavior from another person who can be anyone. For the child, the most salient models are parents especially if they exhibit parental characteristics such as warmth, competence, and control of resources which can lead to strong identification (Eisenberg & Mussen, 2003 [9]).

As children grow and socialize more, they start to develop loyalty, commitment, and kindness toward the people around them while also learning to understand that others have different feelings and opinions or what scholars (Ford, 1979) [10] have coined as *perspective-taking*. Piaget (1932) [11] gave focus on the development of moral understanding of children from egocentric thinking to sociocentric thinking, a form of thinking where they can put themselves in the place of other people. It was then later examined comprehensively by Kohlberg (1981), who proposed stages of moral development: pre-conventional morality, conventional morality, and post-conventional morality (as cited in Eisenberg & Mussen, 2003, p. 122-123 [9]). The first two stages cover early to middle childhood where development is crucial and at the same time, conventional morality is believed to be the stage where moral beliefs develop effectively because children begin to internalize values being taught by adults and their own behavior. These concepts presented are all congruent with how moral development of children happens gradually as guided by and deeply rooted from shared values.

Values are determinants of an individual's future behavior; thus, parents must be wary of what to teach to their children as it will affect later outcomes. Setting a learning environment that encourages moral development and positive social behavior is expected to yield prosocial behaviors. Scholars defined prosocial behavior as voluntary actions that are intended to help or benefit another individual or group of individuals such as donating resources, helping or assisting others, volunteering, cooperation, and comforting others (Eisenberg & Mussen, 2003 [9]; Batson, 1998 [12]; Carlo, 2006 [13]; Eisenberg et al., 2006 [14]; Staub, 1979 [15]; Carlo, 2013 [16]).

Parents greatly influence children as they share values and beliefs at home on a daily basis which is one of the most powerful ways to impart values and influence development (Whiting, 1980 [17]). This supports Halstead & Taylor's (2000) [18] statement that since moral development has been proven to start earlier than thought (adolescence), it means adults play an important role in helping children to understand and articulate their emotions, develop understanding of right and wrong, and to develop prosocial attitudes and behaviors such as sharing and helping others. Eisenberg & Mussen (2003) [9] said that both modeling and identification are seen to be the most subtle determinants of prosocial behavior yet the most powerful. As the first teachers, parents have set desired behaviors for their children (e.g., acting in prosocial ways) and is only possible through managing the family – its members and resources around them.

The family manages resources to meet the needs of each member and the family as a whole that is bound in a dynamic and interdependent environment (Moore & Asay, 2018) [3]. These resources can be tangible or intangible but since one aspect of focus in this study is on prosocial behavior, a strong emphasis on intangible resources will be given. Family resource management, as defined by the National Council on Family Relations (2014) [19], "is an understanding of the decisions individuals and families make about developing and allocating resources, including time, money, material assets, energy, friends, neighbors, and space to meet their goals".

Aside from those mentioned, rearing children uses and manages resources, which later develops a new intangible resource which is human resources. Human resources are defined as the knowledge, ability, and skills acquired over the years as

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one grows and develops, and those experiences gained in various environments. An individual is a resource because he or she possesses a skill set beneficial to other people or the larger society. This skill set is formed through managing family members which starts at an early age and primarily done through parenting practices. Parents use their values systems as basis for guiding and supporting the developing values foundation of younger family members (Moore & Asay, 2018) [3]. Therefore, for an individual to exhibit prosocial behavior, parents must set a positive learning environment for children that is focused on understanding and helping others.

The basic concept of caring is influenced and developed by family resources, parental characteristics, and parents' beliefs while interacting with the child's characteristics (Chase-Lansdale et al., 1995 [20]). Some studies about parenting practices and prosocial behavior revealed that a close, warm, supportive, and responsive relationship of parents and children is a critical factor that fosters and promotes the development of prosocial behavior (Eisenberg et al., 2006 [14]; Hastings, Utendale & Sullivan, 2007 [21]; Carlo, 2006 [13]; Grusec, Chaparro, Johnston, & Sherman, 2013 [22]). According to Werner and Smith (1992) [23], children exposed to that kind of relationship are more likely to be well-adjusted and self-sufficient in adolescence and adulthood.

Another valuable finding on parent-child relationship and prosocial behavior is that parents who used reasoning to their children positively affected their development (Hoffman, 1970 [24]; Grusec et al., 2013 [22]). Pointing out the negative behavior of children while explaining the reason behind it made children have control of their actions internally and externally. Parents are role models for children, therefore, there must be congruence between their words and actions because consistency promotes clarity. It was identified by Kagan (1984) [25] that during early childhood, children abide by parental standards not because of fear of punishment but because they desire to imitate such behavior since their parents have established a warm, loving relationship with them. It is also proven that children who received supportive and sensitive parental guidance would likely be supporting and enacting values that parents taught them (Kochanska, 2002) [26]. Warm, supportive, sensitive, and responsive parental practices influence children to care for the welfare of other people which falls under the concept of prosocial behavior.

A concrete example of prosocial behavior is active citizenship where concern for others are taken into a higher level of action. Hoskins (2014) [27] defined it as "engagement of active citizens in a broad range of activities that promote and sustain democracy which includes civil society activities such as protesting and collecting petitions, community activities such as volunteering, and conventional political engagement such as voting or campaigning for elections" (p. 14). This course of action does not only concern immediate family or friends but a community that belongs to a nation. Concern for nation-building does not happen in an instant but is inherent in people. David Hume (1751/1957) stated that "humans have an intrinsic capacity for compassion and sympathy which is the primary motivator for benevolent and altruistic human actions" (as cited in Carlo, 2013 pp. 208 [16]). This prosocial behavior is grounded in moral principles, beliefs, or emotion (Carlo & De Guzman, 2009 [28]) shared within the family. Additionally, a study by Muddiman, Taylor, Power, & Moles (2018) [29] suggested that the "next step will be to undertake qualitative work with parents and grandparents to explore their orientations to civic participation and their accounts of intergenerational sharing to better understand the process of influence or sharing of values and behaviours" (p. 15). Therefore, family socialization is a crucial factor in studying how individuals acquire such skill set and behavior during their formative years which later on draws them to civic participation that shifts citizens into becoming active citizens. To narrow it down, using Bee's (2017) [30] components of active citizenship, the researcher will focus on civic participation of the participants who are members of the Ugnayan ng Pahinungód/Oblation Corps in UP Los Baños – the official volunteer service program of the university. Civic participation involves a set of voluntary activities that in general focus on helping others and for the public good (Barrett & Brunton-Smith, 2014) [31]. Hence, this study will explore how values formation during childhood shapes individual's behavior that is contributory to civic participation.

MATERIAL AND METHODS

1.1. Research design

Explanatory sequential mixed-methods was used in this study which involved a two-phase project starting with the collection of quantitative data using a questionnaire that measured the motivations of volunteers in joining Pahinungód and assessed the parenting style used by their parents on them. The quantitative data collected was analyzed and used to form and build the qualitative phase. These quantitative results determined the questions included in the qualitative part which gave extensive focus on how family experiences were formed and how parenting styles were practiced during their childhood. Through this research design, the results of the study were given support and in-depth interpretations.

1.2. Respondents

The population of the study came from the 2018-2019 pool of volunteers of UPLB Ugnayan ng Pahinungód. As volunteers, they were tasked to conduct and facilitate tutorials, team buildings, community activities, and other volunteer activities aligned with

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Pahinungód's programs. It is important to emphasize that these volunteers joined Pahinungód on their own will and only volunteered during their available time and when they were interested in such activities. They also get no extra grades nor compensation.

One hundred eighty-two volunteers (182) were qualified to participate in the quantitative phase however, only one hundred thirty-one (131) volunteers were able to answer the questionnaire. Out of the 131 of volunteers, ten volunteers were chosen as participants of the qualitative phase who fit the following criteria: (1) volunteers of UPLB Ugnayan ng Pahinungód, (2) have been a member for at least two years, and (3) have participated in at least three fieldworks inside or outside the campus regardless which program they participated in. However, only six (6) were interviewed due to the pandemic. Since explanatory sequential mixed methods was used, it screened the participants who were best fit to represent the population based on their scores in the values function of VFI.

1.3. Research Instruments

The quantitative phase used the 30-item scale of Volunteer Function Inventory (VFI) by Clary, Snyder, and Ridge (1998) [32]. The scale has a high reliability of .80 to .89 with a mean interscale correlation of .34 which determined the functional motives of individuals who engage in volunteer activities. The six functional motives are as follows: protective, values, career, social, understanding, and enhancement. Another research instrument used was the Scale of Parenting Styles (SPS) by Gafoor and Kurukkan (2014) [33] which was based on the studies of Baumrind (1971) therefore the scale has construct validity in relation to parenting style. The 36-item scale measures the responsiveness and control of each parents wherein validity coefficient is found that 0.80 for responsiveness and 0.76 for control subscale. Its reliability was also tested with a one-week interval with test-retest coefficient of reliability of responsiveness variable in the scale is 0.81 and for control it is 0.83 (Gafoor & Kurukkan, 2014) [33]. Scores determined what type of parenting style the participants' parents are using on them. Nine open-ended questions were used in the qualitative phase.

1.4. Data Gathering Procedure

Data collection for the quantitative data was done using a google form link which included the VFI and SPS. Informed consent was also included in the google form. The quantitative data was then used in narrowing down the qualified participants for the qualitative phase of this study. Those who scored 7 on the values function of VFI was chosen and interviewed.

1.5. Data Analysis

In analyzing explanatory sequential mixed methods, quantitative analysis of the data was done first as this determined questions used and integrated in the interview. VFI and SPS scores were computed by getting the weighted mean scores and analyzed and interpreted using descriptive quantitative analysis. For the interview, recorded conversations with the participants were transcribed. According to Creswell (2017) [35], within-case analysis will be used for multiple cases where description of each case will be provided as well as the theme within it followed by a thematic analysis across the cases. Since multiple-case study was done, the researcher analyzed the data multiple times to gain overall understanding of it. Codes were highlighted and grouped manually then regrouped again electronically under their respective research objectives. Using a categorization strategy in grouping codes, themes were created. Themes identified were pieced together to see the whole picture of the participants' collective experiences. It also facilitated the comprehensive understanding and interpretation of their stories. This was not used to generalize but to see how certain factors affected each case. At the end, the analysis was about the ways their family contributed to the foundation of values of the participants and their prosocial behavior (e.g. volunteering).

1.6. Limitations

Due to unavailability of the master list of the volunteers, the selected population came from the list of year 2018 to 2019. Ten cases were chosen for the qualitative phase however, only six participants were interviewed due to the announcement last March 16, 2020 of a nationwide lockdown in the country to help stop the spread of COVID-19 therefore, generalization is not possible but results could provide valuable inputs for developing family programs or interventions in the family. Another limitation identified in the present study was the lack of a parenting style assessment specific to measure Filipino parenting styles and practices.

RESULTS AND DISCUSSIONS

1.1. Sociodemographic Profile of the Respondents

Table 1 presents the sex and age distributions of the respondents. More than half belonged to the age group 19-22. Respondents were classified into student, faculty, alumni, and staff. Of the overall respondents, almost half of them are alumni volunteers

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(48.85%) while student volunteers were 43.51%. There were 6.11% faculty volunteers and 1.53% staff volunteers. Majority of the respondents were females (59.54%).

Table 1. Sex and age of respondents (n=131)

Sociodemographic characteristics	Frequency	%
Age (years old)		
19-22	89	67.94
23-28	34	25.95
30-63	8	6.11
Sex		
M	53	40.46
F	78	59.54

Using the UPLB Office of Student Affairs' (OSA) classification of organizations, the results yielded twelve categories with multiple responses (see Table 2). Those who were only members of Pahinungód were more than a quarter. Most respondents were affiliated with academic organizations (38.93%) and sociocivic organizations (27.48%). It is noteworthy that regardless of the categories, UPLB student organizations conduct community service.

Table 2. Distribution of the respondents by affiliation/s

Affiliation/s*	Frequency	%
Pahinungód only	39	29.77
Academic	51	38.93
Cultural	9	6.87
Socio-civic	36	27.48
Fraternity & Sorority	6	4.58
Varsitarian	6	4.58
Sport	5	3.82
Religious	5	3.82
International	4	3.05
Socio-political	5	3.82
Professional organizations	17	12.98
Other volunteer organizations	5	3.82

*Multiple responses

1.2. Pahinungód Volunteers' Motivation Behind Their Civic Participation

VFI overall results (see Table 3) shows that the understanding function scored the highest among the six, followed by the values function, then enhancement, protective, social, and career function. For females, they scored understanding function as the highest while for males, it is the values function. It can be assumed that all those motivations are important and play a role in their lives however, volunteers' motivations are mostly motivated by understanding and values functions given the slight difference between the two functions. The respondents volunteer in order for them to gain knowledge on how they can be of service to the underserved and acquire skills and abilities that will better equip them in socializing with community partners as well as fellow volunteers. Additionally, the result shows that these respondents became volunteers because they are motivated by the values they uphold and are seeking ways to express their love for the country and its people. This result is congruent with the systematic review by Chacón et al. (2017) [36] wherein forty-eight research studies that used VFI revealed that younger samples score significantly higher in the understanding function than studies with older participants.

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Table 3. Volunteer Function Inventory Results

VFI Functions	Overall	Females	Males
Understanding	6.37	6.33	6.26
Values	6.27	6.27	6.43
Enhancement	5.04	5.08	4.98
Protective	4.96	4.95	4.99
Social	4.84	4.76	4.94
Career	4.43	4.38	4.51

1.3. Relationship Between Parenting Style and VFI

Results from the VFI and SPS shows an interesting pattern. Respondents with authoritative parents are motivated to volunteer because of the understanding and values function. In the context of volunteering, they seek to learn and understand more about real-life situations happening beyond their classrooms and gain new perspectives on the lives of their fellow Filipino brothers and sisters. They also give importance on upholding their values specifically altruism and humanitarian values thus, they volunteer in Pahinungód. Authoritative parents are known to rule with firm and consistent control while assuring that they provide their children’s need and support, making a democratic environment while growing up. This type of environment encourages an individual to be independent and gain wide perspective on situations because parents are able to provide explanations on their decisions, rules, and expectations thus, making the individual grasp and understand more the context of the situation. And as mentioned previously, studies also showed that authoritative parenting style can lead to prosocial behavior (Altay & Gure, 2012) [37].

While respondents with permissive parents shows a novel result and a new contribution to the field of family and human development. They became volunteers because they see it as an opportunity for themselves to grow as an individual and extend their own selves to others, deal with their inner problems or protect their ego, and see volunteering as a stepping stone on building their own career by gaining volunteer experience and creating social connections. These respondents received minimal to no punishment from their permissive parents and were allowed to make their own decision since their parents imposed low enforcement of rules and authority. This type of parenting shows high acceptance and support with frequent expressions of warmth and affection. This results are almost the same when it comes to each parent. These two types of parenting styles exhibit high responsiveness of parents to their children’s need which was congruent to Schwartz’s study in 2010 [38]. According to him, an environment that allows helping and supporting behaviors positively promote a more sensitive caregiving orientation and a greater desire to protect and promote others’ welfare.

1.4. Definition of Civic Participation

The participants defines civic participation as offering of oneself in service to the community and its people by addressing their needs and maximizing their potentials (see Figure 1). Offering of oneself pertains to the skills, time, and effort one is able and willing to give as a volunteer. This definition of civic participation grows broader and deeper as one gains more experiences which therefore provides deeper understanding of the situation of the community and its people. Through volunteering, volunteers put great importance to their experience working with the community. Experience involves learning the lives of their fellow Filipino people and the community’s situation including their potentials. Civic participation for the volunteers goes beyond from just giving aids, it is to empower fellow Filipino people and uplift the community.



Figure 1. Definition of Civic Participation

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1.5. Family Socialization

Based from the findings, it reveals that family socialization was present during the participants' growing up years and it happened almost every week. Whether the activities were indoor or outdoor, there was a time for families to bond. Family is a vital factor contributory to one's inclination to civic participation and the closeness and bonds formed by families are strongly linked to it (Muddiman et al., 2018) [29]. Situations are different for single-parent families. Single mothers, in this case, had to work twice to provide for their children's needs therefore there was lack of time for family members to bond aside from birthdays and holidays. Another notable finding is the decline in family socialization which was affected by the age of the participants (notably when they reached puberty), lack of time for both parents and children, and change in priorities as a family.

1.6. Parenting Styles and Practices

1.6.1. Mothers' parenting style

In general, mothers of the participants were overprotective to their kids while growing up. They implemented disciplinary strategies, such as punishments, to correct inappropriate behavior of their children. The importance of parental guidance in building the values foundation at home is also apparent to the participants' families. Mothers' presence while growing up contributed to their growth and understanding of their environment. This is also true to participants belonging to single-parent families. These results support Mahalihal's (2004) [39] claim that the way individuals were cared for during their childhood years influences their relationship to people outside their family. Moreover, the participants' experiences of being in a single-parent family made them understand why their mothers were overprotective and strict with regards to their behaviors as a kid. This realization has been discovered by themselves and became coherent for the participants when they reached the stage of young adulthood—the awareness and understanding on the complexity of lone parenting in order to provide for the needs of their children. In general, mothers built a learning environment which played a significant role in establishing their children's foundation of values.

1.6.2. Fathers' parenting style

Based from the results, the highlight of the influence of fathers to their children is teaching the importance of *pakikisama*. The values of maintaining smooth interpersonal relationship with one another was identified by the participants as one of the values that helped them survive in different situations and in dealing with people they encounter until the present day. It guided socialization not just in the family but also in dealing with other members of the society too. Parents in general use their understanding of the culture and beliefs about parenthood and child development and integrate their values in their chosen parenting styles (Goode & Jones, 2008) [1]. Through the values shared by their fathers, it enabled them to reach out to people which eventually translated into joining volunteer organizations and participating in activities that empower their fellow Filipinos. Another notable result is the dynamics between their fathers working abroad and the rest of the family. Since fathers were not physically present back then, they made sure that their relationship with their children was not affected by the distance through constant communication and guidance with the help of the mother.

1.6.3. Overall parenting style

In overall parenting styles, the results shows that both parents used rewards to recognize desirable behavior. They used it to encourage and motivate children to sustain such desirable behaviors while punishments were implemented to inhibit inappropriate ones. They were also strict when it comes to their children's studies and expected them to perform well in class. Parents were also involved in their children's social interactions that is why they preferred to know their peers and the activities they do.

The overall parenting style also emphasizes the importance of teaching values at home. Parents may have practiced similar behaviors and values but sometimes negotiation takes place which create a unique blend of values and decision-making (Moore & Asay, 2018) [3]. Parents taught their kids values and learning that they were able to use when they socialized with others and faced in a situation. According to Moore & Asay (2018) [3], parents use their values system in developing their children's foundation of values. These values taught by parents were most effective and better understood when coupled with explanations through open communication between the parents and their children. Parents who used reasoning on their children positively affected their development which is related to better parent-child relationship and children's prosocial behavior (Grusec et al., 2013) [22].

It is also apparent that each parent exhibited different parenting styles using various practices known to them to be able to provide the needs and give proper care to their children while growing up. As mentioned earlier, parents integrate their highly held values and beliefs in their child-rearing practices (Goode & Jones, 2008) [1]. Additionally, parents who showed high levels of positive emotions have been linked with children's prosocial behavior and empathic behavior (Laible & Eye, 2012) [40]. When the

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participants reached the young adulthood stage, they now have an understanding why their parents were protective and strict, the reasons behind their rewards and punishments, and why they put such importance in teaching values and skills at home. This finding is consistent across all participants.

1.6.4. Extended childcare

Another noteworthy findings under the parenting styles is the involvement of extended family in childcare. Grandparents of the participants also contributed to their growth and development by giving guidance to the parents based from their experiences in childrearing and handing down values they deem necessary in taking care of a child. Values taught by their grandparents to their parents were the same values that was given and taught to the participants while growing up. Even though the participants are in their young adulthood stage already and have gained various experiences outside the family, it is still the values foundation built during their childhood years that persists (Moore & Asay, 2018) [3]. However helpful, it must be noted that the presence of grandparents or any member of the extended family may bring confusion to children when it comes to identifying the main authority figure in the family.

1.7. Values Components of Civic Participation as Influenced by Family Values

1.7.1. Pakikipagkapwa

Learning the importance of social interactions (*pakikisalamuha*) and *bayanihan* paved the way for participants to be involved in the community and join civic organizations. This was mostly influenced by their parents' behavior when it comes to helping others which inspired them to continue extending the help to the needy and establish ties with the community to collaborate and empower its people through their own little actions. *Pakikipagkapwa* has always been practiced by Filipinos and see their fellows as coequal (Alampay, 2014) [41]. It is one of the core values of civic participation as identified by the participants.

1.7.2. Malasakit

Civic participation also means having concern for others (*malasakit*). It includes the values of respect and empathy—as mentioned by the participants. Most of the participants experienced getting help from other people or being part of the marginalized sector and having been in these situations before, the participants empathized for fellow Filipinos who are in need thus joining civic organizations for underserved communities that address pressing social issues. Along with the feeling of empathy, their concern for others grew stronger in hopes of building a better future for their fellow Filipinos. *Malasakit* also involves respecting other people regardless of their status and situation.

According to the participants, showing concern is not only applicable to certain people but instead one cares for others and equally respects them.

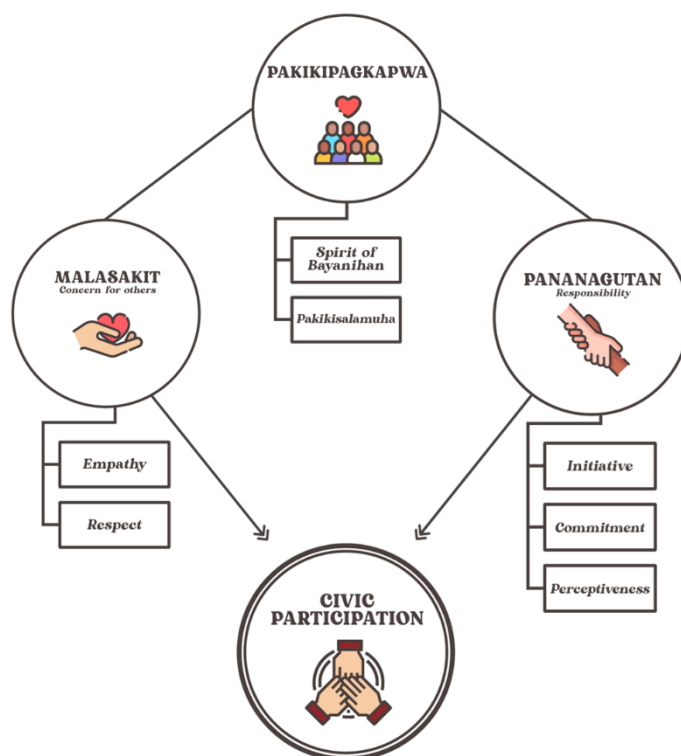


Figure 2. Values Components of Civic Participation

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1.7.3. Pananagutan

Results showed that being responsible involves showing initiative. Responsibility is being able to recognize that someone or a community needs help and initiate actions needed. Additionally, a responsible individual is sensitive and understanding of the situation he or she is in. To better help people, one should exert more effort in knowing and understanding the situation of the people and the community. Lastly, being committed in helping and empowering others takes a huge part in being responsible. Participants put emphasis on the value of maintaining relationships and support given to others. In joining civic organizations, serving with a heart means serving with strong intention and dedication that will maintain such initiatives.

1.8. Values Formation as an Antecedent of Civic Participation

The identified values linked to civic participation were handed down by the parents to their children. According to DiLalla et al. (2012) [7], family socialization facilitates children's development of moral understanding and learning of values such as empathy and helping others which starts at the second year of life. This means that adults play an important role in helping children understand and articulate their emotions, develop understanding of right and wrong, and to develop prosocial attitudes and behaviors (Halstead & Taylor, 2000) [18]. Through various parenting styles and practices, they all contributed to the moral development of the participants from childhood up to the present time.

Parents teach values by setting examples through their behavior and socialization with other people. During the first two years of life, children observe parents, siblings, teachers, and peers as models of behaviors (Hall, 2008) [2]. Retention and understanding of these values will be effective if done accurately, continuously, and with the presence of noncontrolling and mutual relationship with parents (Grusec et al., 2000) [42]. Participants learned to adapt said values through observation and modeling which is believed to be subtle yet most powerful determinants of prosocial behavior (Eisenberg & Mussen, 2003) [9]. In Psychoanalytic Theory, strong identification of behavior is attributed to parental characteristics such as warmth, competence, and control of resources (Eisenberg & Mussen, 2003) [9]. Stolle (2003) [43] emphasized that it is the parents who model the value of performing civic duty, who show the value of cooperation with others, and who teach their children about trusting or mistrusting others.

On the other hand, the Social Learning Theory of Bandura explained that behavior is influenced by external factors through mediating cognitive processes (Eisenberg & Mussen, 2003) [9]. These cognitive processes involve intentions and self-evaluative processes concerning the manipulation and outcomes of children's behavior. Using cognitive processes can help children anticipate the outcomes of their behavior—whether or not it will bring a desirable effect or negative impacts on themselves. Internal rules and values are integrated in the participants' learning processes during childhood by means of imitation of models. The explanation of moral behavior provided by parents as well as their reactions to their children's behavior also contributed to the evaluation and assessment processes of values and rules taught to children.

Motivation is also an important factor in translating and integrating observed behaviors into one's own actions. Reeve et al. (2008) [44] mentioned that an individual is motivated if the task given to them are personally valued and important to them. Over time and through practice, these observed behaviors guided by their highly regarded values were applied in every day life by the participants and were translated into civic participation in the form of volunteering.

CONCLUSIONS AND RECOMMENDATIONS

The results of this study helped in better understanding the underlying behaviors and values associated with civic participation and the family. Respondents volunteer to learn outside the classroom and socialize with the community. Through this experiential learning, they gain knowledge and hone their skills and abilities on how they can be of service to the underserved. It is also an avenue for them to practice values learned, such as *pakikipagkapwa*, *malasakit*, and *pananagutan*, from their parents who played an integral part as models and within their families who served as other socializing agents.

Parents are considered as the main authority figures and models in the family. Children learn and adapt behaviors mainly through observations, modeling, and parental guidance and control. It is recommended that those values mentioned beforehand should be included in the core values that will be taught to their children while growing up. Through these values, the awareness and development of the sense of civic duty will be instilled in them. Family socialization is also of equal importance when it comes to the positive development of children.

It is recommended for future researchers to develop a tool that will holistically capture the context of Filipino families' parenting styles and practices. Also, a wider range of participants can be included in the interview for future research to generate diverse responses. Further studies may also consider looking into a follow-up study or may include the socioeconomic status of Filipino families and its relationship to civic participation which might yield a variation of results.

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Civic activities, like volunteering, can be in partnership with the school or the local government unit of the community. This is to build better opportunities for the youth to take part in nation-building and to enhance their capabilities and practice their values rooted from their family's own culture and practices.

It is highly recommended for adolescents to expose themselves outside the family and participate in civic duties that will enhance the values they learned from their parents which may contribute to their personal growth and may also lead to the empowerment of oneself and the nation.

REFERENCES

- 1) Goode, T. D. & Jones, W. A. (2008). Cultural influences on child development: The middle years. In *Family influences on childhood behavior and development* (pp. 81-114). Routledge.
- 2) Hall, S.K. (2008). Raising Kids in the 21st Century. The Science of Psychological Health for Children. John Wiley & Sons Ltd.
- 3) Moore, T. J. & Asay, S. M. (2018). Family Resource Management (3rd ed.). Sage Publication Inc.
- 4) Bronfenbrenner, U. (1979). The ecology of human development: *Experiments in nature and design*. Harvard University Press.
- 5) Small, S. A., & Eastman, G. (1991). Rearing adolescents in contemporary society: A conceptual framework for understanding the responsibilities and needs of parents. *Family Relations*, 40, 455–462.
- 6) Dunn, J. (1988). Relations among relationships. In S. Duck (Ed.), *Handbook of personal relationships* (pp. 193-210). Wiley.
- 7) Dilalla, L. F., Mullineaux, P.Y., & Biebl, S. J. W. (2012). Social-Emotional Development Through a Behavior Genetics Lens. *Advances in Child Development and Behavior*, 153196. <https://doi:10.1016/b978-0-12-394388-0.00005-8>
- 8) Shaw, M. & Costanzo, P. (1982). Theories of social psychology (2nd ed.). McGraw Hill.
- 9) Eisenberg, N. P. & Mussen, H. (2003). The Roots of Prosocial Behavior in Children. Cambridge University Press.
- 10) Ford, M. E. (1979). The construct validity of egocentrism. *Psychological Bulletin*, 86, 1169-1188.
- 11) Piaget, J. 1932. *The Moral Judgement of the Child*, London: Routledge, Kegan Paul.
- 12) Batson CD. Altruism and prosocial behavior. In: Gilbert DT, Fiske ST, Lindzey G, editors. *The handbook of social psychology*. 4th ed. Vol. 2. New York: McGraw-Hill; 1998. pp. 282–316.
- 13) Carlo, G. (2006). Care-based and altruistically-based morality. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 551–579). Lawrence Erlbaum.
- 14) Eisenberg, N., Fabes, R.A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 646–718). John Wiley.
- 15) Staub, E. (1979). Positive social behavior and morality: Socialization and development (Vol. 2). Academic.
- 16) Carlo, G. (2013). The development and correlates of prosocial moral behaviors. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (p. 208–234). Psychology Press. <https://doi.org/10.4324/9780203581957.ch10>
- 17) Whiting, B. B. (1980). Culture and social behavior. *Ethos*, 8, 95–116.
- 18) Halstead, J. M. & Taylor, M. J. (2000). Learning and Teaching about Values: A review of recent research. *Cambridge Journal of Education*, 30(2), 169–202. <https://doi:10.1080/713657146>
- 19) National Council on Family Relations. (2014). Family life education content areas: Content and practice guidelines. Author. https://www.ncfr.org/sites/default/files/ncfr_white_paper_family_life_education.pdf
- 20) Chase-Lansdale, P.L., Wakschlag, L., & Brooks-Gunn, J. (1995). A psychological perspective on the development of caring in children and youth: the role of the family. *Journal of Adolescence*, 18, 515-556.
- 21) Hastings, P. D., Utendale, W. T., & Sullivan, C. (2007). The socialization of prosocial development. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 638–664). Guilford Press.
- 22) Grusec, J. E., Chaparro, M. P., Johnston, M. A., & Sherman, A. (2013). Social Development and Social Relationships in Middle Childhood. *Handbook of Psychology*, Second Edition. <https://doi:10.1002/9781118133880.hop206010>
- 23) Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.
- 24) Hoffman, M. L. (1970). Moral development. In P. H. Mussen (Ed.), *Carmichael's manual of child psychology* (Vol. 2, pp. 261–359). Wiley.
- 25) Kagan, J. (1984). The nature of the child. Basic Books.
- 26) Kochanska, G. (2002). Committed compliance, moral self, and internalization: A mediated model. *Developmental Psychology*, 38, 339–351.

Values Formation within the Family as an Antecedent of Civic Participation

- 27) Hoskins, B. (2014) Active Citizenship. In *Michalos A.C. (eds) Encyclopedia of Quality of Life and Well-Being Research*. <https://doi.org/10.1007/978-94-0070753-5>
- 28) Carlo, G. & De Guzman, M.R.T. (2009). Theories and research on prosocial competencies among US Latinos/as. In F. Villaruel, G. Carlo, M. Azmitia, J. Grau, N. Cabrera, & J. Chahin (Eds.), *Handbook of U.S. Latino Psychology* (pp. 191-211). Sage Publications.
- 29) Muddiman, E., Taylor, C., Power, S. & Moles, K. (2018). Young people, family relationships and civic participation. *Journal of Civil Society*, 1–17. <https://doi.org/10.1080/17448689.2018.1550903>
- 30) Bee, C. (2017). Active Citizenship and Its Components. *Active Citizenship in Europe*, 57-79. https://doi.org/10.1057/978-1-137-45317-4_4
- 31) Barrett, M. & Brunton-Smith, I. (2014). Political and Civic Engagement and Participation: Towards an Integrative Perspective. *Journal of Civil Society*, 10(1), 5-28. <https://doi.org/10.1080/17448689.2013.871911>
- 32) Clary, E. G., Snyder, M., Ridge, R.D., Copeland, J., Stukas, A. A., Haugen, J. P., & Meine, P. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74, 1516-1530.
- 33) Gafoor, K. & Kurukkan, A. (2014). Construction and Validation of Scale of Parenting Style. *Online Submission*, 2(4), 315-323.
- 34) Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology*, 4(1, Pt. 2), 1–103.
- 35) Creswell, J. & Clark, W. V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- 36) Chacón, F., Gutiérrez, G., Sauto, V., Vecina, M. L., & Pérez, A. (2017). Volunteer functions inventory: A systematic review. *Psicothema*, 29(3), 306-316.
- 37) Altay, F. B. & Gure, A. (2012). Relationship among the Parenting Styles and the Social Competence and Prosocial Behaviors of the Children Who are Attending to State And Private Preschools. *ERIC – Institute of Education Sciences*. <https://files.eric.ed.gov/fulltext/EJ1002872.pdf>
- 38) Schwartz, S. (2010). Basic Values: How They Motivate and Inhibit Prosocial Behavior. *Prosocial motives, emotions, and behavior: The better angels of our nature*. 14. 10.1037/12061-012. <https://doi.org/10.1177/0899764008319624>
- 39) Mahalihali, K. (2004). Family Influences on the Development of a Child's Behavior. *Undergraduate Research Journal for Human Sciences*.
- 40) Laible, D. and Eye, J. (2012). Parenting. In *Encyclopedia of Human Behavior 2nd edition*. Academic Press. <https://doi.org/10.1016/B978-0-12-375000-6.00266-4>.
- 41) Alampay, L.P. (2014). Parenting in the Philippines. In H. Selin and P. Schvaneveldt (Eds.), *Parenting Across Cultures: Childrearing, Motherhood and Fatherhood in Non-Western Cultures*. The Netherlands: Springer. 10.1007/978-94-007-7503-9_9.
- 42) Grusec, J & Goodnow, J & Kuczynski, Leon. (2000). New directions in analyses of parenting contributions to children's acquisition of values. *Child development*. 71. 205-11.
- 43) Stolle, D. (2003). The Sources of Social Capital. In: Hooghe, M., Stolle, D. (eds) *Generating Social Capital*. Palgrave Macmillan, New York. https://doi.org/10.1057/9781403979544_2.
- 44) Reeve, J., Ryan, R., Deci, E., & Jang, H. (2008). Understanding and promoting autonomous self-regulation: A self-determination theory perspective. *Motivation and self-regulated learning: Theory, research, and applications*. 223-244.



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Academic Dishonesty: Lived Experiences of Students Receiving Services from Online Academic Commissions



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ABSTRACT: Since online learning has become more common, academic dishonesty has become more pervasive. A trend of academic dishonesty had developed as a result of all the difficulties and challenges in this new educational system as well as the effects of the pandemic. By examining the actual experiences of students who utilize the services of the online academic commission, the observation intended to contribute to the existing body of literature on this trend. A qualitative, phenomenological study approach was employed to grasp the significance of the lived experiences of the students receiving services from online academic commissions. Snowball sampling was used in the selection of the participants and Collaizzi's seven-step technique analysis for the phenomenological approach was used in this study.

KEYWORDS: phenomenology, academic dishonesty, qualitative research, pandemic, online learning, Collaizzi's technique analysis

1. INTRODUCTION

The pandemic's onset caused significant challenges in the educational system. Online learning had proven tough for both students and teachers. According to Barrot, J. et al. (2021), the students faced a variety of online learning obstacles, both in terms of type and degree. Their home learning setting was the biggest challenge, whereas technical knowledge and competency posed the least amount of difficulty. While as claimed by Nambiar, D. (2020), many students experience difficulties in gaining access to the internet. This, in turn, causes problems with attendance and engagement in online activities sessions, making the implementation of online educational platforms difficult. As a result, student tend to keep up by accomplishing their assignments and completing term exams with the support and assistance of other sources.

While upon the delivery of lessons, teachers assess student learning to determine the learning outcomes through quizzes, projects and term examinations online evaluations are frequently used in online learning, which limits teachers to indirect monitoring of students and makes it hard to control and manage cheating (Arkorful & Abaidoo, 2015). The most common student techniques in the conduct of their performances in quizzes, projects and term examinations included resource management and utilization, help-seeking, improving technical aptitude, timekeeping, and learning environment management (Barrot et al, 2021). Academic dishonesty has become a major issue among high school and college students (Jensen, 2002). Their standards for what is and is not cheating frequently shift depending on the circumstances (Trautner & Borland, 2013). However, it is evident that peers have a significant impact on decisions about academic dishonesty. According to Diego, L. (2017), exam-related cheating is brought on by peer pressure. Regarding the incidence of academic dishonesty in the virtual class, there is a lack of empirical evidence. According to the findings of Black, E. et al. (2008), it is fair to assess if online learners define cheating in the same way as those enrolled in traditional learning settings. To assess this understanding, more research is required. Additionally, qualitative analysis should be used to develop a thorough understanding of the observable variables that may be included in a valid and reliable tool to determine academic dishonesty in online learning environments. However, the study of Aguilar, M. (2021), explored the academic servicing trade, which is thought to be a place where academic dishonesty is accepted and often used in the context of the new normal. Aguilar found out that academic servers are mostly educators who volunteer their services to help students with their academic responsibilities. They typically earn between Php. 1,500.00 and Php. 20,000.00 every week from their patrons, who pay an average of Php.

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500.00 for each task. Aguilar further revealed that unwillingness to independently study due to poor or no comprehension of lessons and insufficient assistance from teachers and parents, as well as laziness, peer pressure, and pressure to achieve excellent results, are the leading causes of academic dishonesty among students. While Bayaa, M. et al. (2016), claim that the primary factors of academic dishonesty were the desire for high grades, heavy academic loads, and the need to impress family and relatives. This disturbing trend of online academic commissions, which might have an impact on the quality of education, must concern the academic community. In order to determine how it may be minimized, this study looked at the actual experiences of students who use the online academic commission's services.

RESEARCH QUESTIONS

1. What are the most frequent services that students obtain through online academic commissions, and how do they receive such services?
2. Why do students use the services provided by online academic commissions?
3. What is the students' perception of online academic dishonesty?
4. How does using online academic commissions for assistance affect the quality of education?
5. In what way can this online academic dishonesty be prevented?

2. LITERATURE REVIEW

Several studies were conducted to establish the optimal application of the online learning system. Sun & Chen (2016) revealed that successful online education relies on curriculum that is well-designed and suited for the learners and teachers, a healthy student-teacher relationship, qualified teachers,

A welcoming virtual learning community, and also the rapid advancement of technology. While Joaquin et al. (2020) claim that perhaps the effective implementation of the e-learning system of education could very well depend on the capability of teachers, the state of the educational setting, network connectivity, availability of equipment, capacity of learners, as well as the accessibility of ways to deliver classes, Mobo & Sabado (2019) claims that it tends to promote efficiency as well as resulted to learners' performance in learning, but nevertheless requires improvement. The academic dishonesty, however, poses a significant obstacle to the effective and efficient delivery of teaching.

The results from the study of Sendag, S. et al. (2012) show that in the majority of the survey's predictor variables, undergraduate students were substantially more involved in e-dishonesty practices than graduate students. Additionally, the main area of research showed a substantial connection between participation in e-dishonesty and the justification for e-dishonesty. The least engagement in e-dishonesty was reported by students in the social sciences and education, while engineering and the physical sciences had the highest involvement.

While the study of Herdian, H. et al. (2021) demonstrates that collaboration-based academic dishonesty is widespread in online learning. Through many methods, student learning provides tactics for performing academic misconduct. An example is copying a friend's answer file from the online system and entering in with a default username and password which students need not alter. Additionally, rather than attempting to fill in the questionnaires, the student opted to act dishonestly by copying his friend's work by merely renaming. It has been revealed that students use the WhatsApp group chat feature to work together to commit academic dishonesty.

Another trend in the academic dishonesty has been investigated by Aguilar, M. (2021). The academic services sector, which is thought to provide as a site for academic dishonesty. Aguilar discovered that transactions start with academic servers advertising themselves through postings in social media, after which a student looking for someone to fulfill their academic requirement reads the post and contacts the academic server to inquire.

2.1 Summary

Since online learning has become more common, academic dishonesty has become more pervasive. A trend of academic dishonesty had developed as a result of all the difficulties and challenges in this new educational system as well as the effects of the pandemic. By examining the actual experiences of students who utilize the services of the online academic commission, the observation intended to contribute to the existing body of literature on this trend.

2.2 Conceptual Framework

To direct this research, a conceptual framework was developed based on prior analysis and primary data (see figure below).

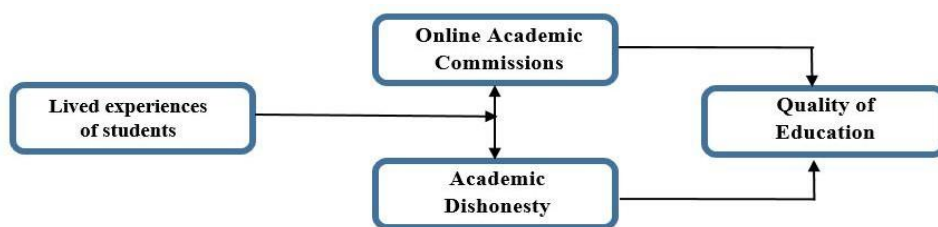


Figure 1. Conceptual Framework of the Study

Lived experiences of students who received services from online academic commissions are regarded a sort of academic dishonesty, and both have an impact on the quality of education. Online academic commissions are online venues comparable to those used by Aguilar, M. (2021) academic servicing trade, which provides paid services such as assignments, projects, quizzes, thesis, term paper, research tasks, and so on. Several studies have found that academic dishonesty, such as this, has a significant impact on educational quality. According to Bachore, M. (2016), academic dishonesty decreases educational quality.

3. METHODS

A qualitative, phenomenological study approach was employed to grasp the significance of the lived experiences of the students receiving services from online academic commissions. Phenomenological study is an in-depth examination of what people's experiences mean to them. It is fundamentally concerned with the research of ordinary human events in order to discover people's common sense understanding and the meaning they construct of their own and others' experiences (Bliss, 2016).

3.1 Participants and Locale of the Study

The participants were chosen using the snowball sampling approach, in which one of the participants' friend, which is an online academic commissioner, recruited students who often used the online academic commission's services. The researchers determined that they were qualified since all individuals used a range of services from the same five online academic commissions on various social media platforms. The study took place at Bulacan, Philippines.

3.2 Data Gathering Procedure

In this study, data was gathered using a semi-structured interview guide question. Inquisitive questions were developed based on the participants' first replies to gain a thorough knowledge of their experiences. Snowball sampling was used in the selection of the participants. The one-on-one interview was conducted via Zoom and the questions asked were: (1) What are the most frequent services that you obtain through online academic commissions, and how do you receive such services? (2) Why do you use the services provided by online academic commissions? and (3) What is your perception of online academic dishonesty? Additional follow-up queries also were designed to gain an in-depth insight of the participants' experiences led by the participants' first replies, examples here include: "Do you think this is a form of academic dishonesty?" "Do you feel you can still gain knowledge and skills through this?" "Can you tell me more about it?" "What do you think can be done to avoid academic dishonesty?". Interviews were digitally recorded with the participants' approval to assist in correct transcribing then analyzed using Colaizzi's phenomenological technique. All participants provided e-signed informed consent to participate.

3.3 Data Analysis

Colaizzi's seven-step technique analysis for the phenomenological approach was used in this study. The data and themes was then analyzed by the researcher. Figure below illustrates Colaizzi's seven-step analytical approach

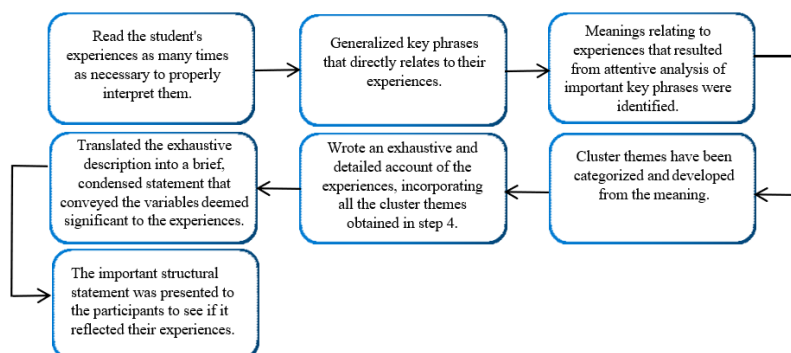


Figure 2. Colaizzi's Technique Analysis

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4. RESULTS

Ten students who are actively engaged in the services of the online academic commissions, were interviewed one-on-one via the digital platform Zoom in this phenomenological study. After then, the tapes were transcribed and evaluated.

By questioning a participant about the platforms of some of the online academic commissions and asking them for tips on the top 3 who frequently utilize their services, the researchers were able to identify the participants. Following that, the researchers got in touch with the candidates and, in a letter, described the study's purpose. Thirty possible participants were contacted, however only 10 responded and agreed to an interview via Zoom. They were assigned the numbers S1 through S10. The questions were as follows:

1. What are the most frequent services that you obtain through online academic commissions, and how do you receive such services?
2. Why do you use the services provided by online academic commissions?
3. What are the your perception of online academic dishonesty?

Table 1. Characteristics of Participants

Participant	Gender	Category	Major/Strand
S1	Female	Senior High School	STEM
S2	Male	College	Nursing
S3	Male	Senior High School	STEM
S4	Male	Senior High School	STEM
S5	Female	Senior High School	STEM
S6	Female	College	Psychology
S7	Male	Senior High School	STEM
S8	Male	College	Engineering
S9	Male	College	Engineering
S10	Female	Senior High School	HUMSS

Table 1 reveals that there are three female senior high school students, two of whom are studying STEM and one of whom is studying HUMSS, as well as three male senior high school students, all of whom are studying STEM. There were also one female and three male college students majoring in Psychology, Nursing, and Engineering. It can be noticed that the majority of students who are using online academic commissions are from the senior high school. It must be highlighted that Science, Technology, Engineering, and Mathematics are the most prevalent strands of students who use the services, which is also connected to the courses or majors listed for college students that use the online academic services regularly. The data acquired were in agreement with the findings of Sendag, S. et al. (2012) wherein undergraduate students are more engaged in e-dishonesty practices than the graduate students.

Table 2. Services received by the participants at the time of the study

Services	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Assignment	x	x	x	x	x	x	x	x	x	x
Project	x	x	x	x	x	x	x	x	x	x
Quizzes/Exams	x		x	x	x		x		x	x
Thesis	x	x	x	x	x	x	x	x	x	x
Term Paper	x	x							x	x
Other Research Tasks	x	x	x	x	x	x	x	x	x	x

Table 2 demonstrates that all participants availed services such as doing their assignments, projects, thesis, and other research tasks such as looking for various articles online. However, only seven of the ten participants used the services of answering quizzes/exams, and only four of the ten participants sought help with their term paper. According to the evidence, practically all of the school activities were performed by others for payment and are regarded academic misconduct. This exemplifies what Herdian, H. According to et al. (2021), collaboration-based academic dishonesty is common in online learning.

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Table 3. Cluster Themes

Major Themes	Sub-Themes
● Online academic commission	➤ Services
	➤ Social media platforms
● Inability to cope with the pressures of student life	➤ Plenty of requirements
	➤ Time pressure caused by deadlines
	➤ Did not comprehend the lesson at all
	➤ Desire for higher grades
● Perception of Academic Dishonesty	➤ A natural thing
	➤ Not bad at all, it helps

Table 3 outlines the key topics that came up during the participants' one-on-one interviews. The majority of the themes that surfaced were consistent with the findings of Bayaa, M. et al. (2016), Aguilar, M. (2021), and (Barrot et al, 2021).

NARRATIVE OF EXPERIENCES

Open-ended questions were employed by the researchers to obtain participant responses on their personal experiences with online academic commissions.

For the first question, "What are the most frequent services that you obtain through online academic commissions, and how do you receive such services?"

S1: " I always avail their service for my assignments and projects. Also with our thesis and other research work. I first learned about it in Facebook, but now, most of transactions for my commissioned works are through Twitter.

S2: "Projects mostly, and also assignments like essay. There are times that I ask help for our thesis and searching for related literature. I send them message in Facebook and pay them through gcash and then they send me the finished work in my email."

S3: " Almost all of their services like assignments, projects, activities, research, and also I sometimes ask them to answer my exam in subjects that are very hard to comprehend. Well, I receive the work when they send it to my email. For exams, I send them the link and they answer it using my email address and I give them my password also so they can answer it.

S4: "Quiz, assignment, project, term paper, thesis, researching an article or movie reviews. I send them the instruction in messenger then they just do it and send me back."

S5: " I often avail their services for my assignments particularly essay and projects. But I also ask help for research paper, term paper, and quizzes. I DM (direct message) in Twitter."

S6: "Assignments like essays, projects, case study, even thesis and other research. I receive through email but I contact them through Twitter."

S7: "Mostly infographic and poster projects, researching for assignments, case study, and thesis.

By sending message in their Facebook page"

S8: " Essay, we always have an essay assignment and project, also term paper and other research works. I transact with them through Twitter and payments are made through gcash only."

S9: "Thesis, term paper, other research tasks, projects and most of the time, assignments.

Through their Facebook page."

S10: Film review, other projects also like poster making, infographics, and a lot of essays. I send it through messenger."

For the second question, "Why do you use the services provided by online academic commissions?"

S1: "Due to bulk of activities and assignments. As in everyday, it's like five to six tasks and more than five assignments. I cannot handle them all, if I cannot turn it before the due date, I will get low grade."

S2: "Many assignments and projects"

S3: "Too tiring and I cannot understand the lesson well because teachers are too fast in explaining."

S4: "I want to have high grades so my parent will be happy."

S5: "I ask help from academic commissioners because there are lot of assignments and projects and I cannot do it all at once."

S6: "I need to comply on time. I need to finish all those plenty of tasks in time."

S7: "Super as in overloading school works are the reason why I ask them to do it. But I am always looking for a cheaper commission fee."

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S8: "I don't understand our lessons most of the time because looking at the computer for several hours makes me sleepy and tired"

S9: "So I can be included in the top 10 of the class, most of my classmates are doing it any way." S10: "Because of so many assignments everyday and deadlines are really scary."

For the third question, "What are the your perception of online academic dishonesty?"

S1: "It means cheating, like you are copying someone else exam or assignment."

S2: "It seems to be a natural thing nowadays because teachers can't really know who did our

S3: "It may be bad if you are cheating, but if you are just asking for help to have a good output, then it is not bad." S4: "Online academic dishonesty for me means cheating, like in exam, you copy from others or plagiarism is also a form of online academic dishonesty. But getting help from others like the academic commission, I think is not dishonesty, it's trying to survive."

S5: "It is plagiarism, like copying the work of others, but the online academic commission is not a form of academic dishonesty because students only ask for help and does not plagiarize."

S6: "It seems to be common specially now with online classes. Because it is easier to access anything through the help of the internet."

S7: "Most common is plagiarism but if you ask for the help of academic commissions, there will be no plagiarism. They give copy of zero plagiarism report for an essay task."

S8: "It has been happening in online classes and it has been becoming an acceptable thing."

S9: "Can't help being dishonest in online classes since there are many assignments and projects, students like me seek the help of others like the academic commissions."

S10: "Is it bad? No. Is it good? No also. I mean, online academic dishonesty depends on how you are being dishonest. If you are cheating, it's dishonesty, but if you are asking for help from others, it is not dishonesty."

5. DISCUSSION

Almost all of the activities in the online classroom such as assignments, projects, research activities, thesis, and others were obtained by participants through online academic commissions. It has been revealed that the most frequent services that they avail are essays as part of their assignments, and they typically obtain services through Twitter and Facebook. When asked why they utilize the services provided by online academic commissions, practically all of the participants said it is because they have plenty of schoolwork. The majority of them have the same opinion of online academic dishonesty, which they see as neither bad nor beneficial. However, they believe that the online academic commission is not a form of academic dishonesty, but rather a useful tool for surviving their course.

Academic institutions should be deeply concerned about the proliferation of online academic commissions. When students obtain services from an online academic commission, they do not learn or comprehend the subject matter since they were not the ones who completed the tasks; this has a significant influence on the quality of education. The battle against academic dishonesty is one that will likely remain challenging for some time. However, academic institutions may take significant steps to reduce unethical activities and guarantee that honesty predominates in the online classroom.

6. CONCLUSION AND RECOMMENDATION

Since academic dishonesty is a complex and dynamic issue, there are several approaches that may be taken to address it. Creating and putting into place strict procedures to prevent it to lessen academic dishonesty is one. For instance, it is important to seriously penalize dishonest students in order to discourage others from becoming dishonest.

Teachers should also be creative in assessing students' performance. Cheating will be more difficult if students would be unable to forecast the kind of exams that will be administered in classroom. Aim for two items while preparing tasks like essays and term papers: originality and uniqueness. The likelihood that student is able to discover a pre-written paper on the internet that meets all the requirements decreases with the originality of the topic you pick and the accuracy of your directions. By revising paper themes each year, teachers can reduce the chance that students will submit papers from past years to be their own. You may consider about creating a rubric that provides a thorough discussion of the criteria you'll be using to grade the assignment. There are some students who breach ethical principles at class since they are unaware of the moral standards expected in the classroom. As a result, students must be motivated to maintain academic integrity. Furthermore, parents must instill ethical values in their children in favor of making them honest and conscientious. Students can help to reduce academic dishonesty since they are aware of dishonest students. Hence, they must be persuaded to share information on instances of academic dishonesty.

REFERENCES

- 1) Aguilar, Mark Gabriel Wagan. (2021). Academic Dishonesty in the Philippines: The Case of 21st Century Learners and Teachers. *International Journal of Management, Technology, and Social Sciences (IJMSTS)*, 6(1), 306-313. DOI: <https://doi.org/10.5281/Zenodo.5091613>.
- 2) Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), 29–42.
- 3) Bachore, M. (2016). The Nature, Causes and Practices of Academic Dishonesty/Cheating in Higher Education: The Case of Hawassa University. *Journal of Education and Practice*. 7:19. 14-20
- 4) Barrot, J.S., Llenares, I.I. & del Rosario, L.S. Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Educ Inf Technology*, 26, 7321–7338 (2021). <https://doi.org/10.1007/s10639-021-10589-x>
- 5) Bayaa Martin Saana, S.B., Ablordeppey, E., Mensah, N.J. et al. Academic dishonesty in higher education: students' perceptions and involvement in an African institution. *BMC Res Notes* 9, 234 (2016). <https://doi.org/10.1186/s13104-016-2044-0>
- 6) Black, Erik W.; Greaser, Joe; Dawson, Kara. 2008. Academic Dishonesty in Traditional and Online Classrooms: Does the "Media Equation" Hold True? *Journal of Asynchronous Learning Networks*, v12 n3-4 p23-30.
- 7) Bliss, L. (2016). Phenomenological Research: Inquiry to Understand the Meanings of People's Experiences. *International Journal of Adult Vocational and Technology*. 7:3. 14-26.
- 8) Diego, L. (2017). Friends with Benefits: Causes and Effects of Learners' Cheating Practices During Examination. *IAFOR Journal of Education*. 5:2.121-138.
- 9) Herdian, H., Mildaeni, I. N., & Wahidah, F. R. (2021). "There are Always Ways to Cheat" Academic Dishonesty Strategies During Online Learning. *Journal of Learning Theory and Methodology*, 2(2), 60–67. <https://doi.org/10.17309/jltm.2021.2.02>
- 10) Jensen, L., Arnett, J., Feldman, S., & Cauffman, E. (2020). It's Wrong, But Everybody Does It: Academic Dishonesty among High School and College Students. *Contemporary Educational Psychology*. 11) 27:2. 209-228.
- 12) Joaquin, J., Biana, H., & Dacela, M. (2020): *The Philippine Higher Education Sector in the Time of COVID-19*. *Frontiers in Education*, 5. 576371. Available at <https://www.frontiersin.org/articles/10.3389/feduc.2020.576371/full>
- 13) Mobo F., Sabado G. (2019): An Assessment of the Effectiveness of E-Learning in AMA Olongapo Campus. *Oriental Journal of Computer Science and Technology*, 12(3), 99-105.
- 14) Nambiar, D. (2020). The impact of online learning during COVID-19: students' and teachers' perspective. *The International Journal of Indian Psychology*, 8(2), 783-793.
- 15) Sendag, S., Duran, M., & Fraser, M. (2012). Surveying the extent of involvement in online academic dishonesty (e-dishonesty) related practices among university students and the rationale students provide: One university's experience. *Computers in Human Behavior*. 28:3. 849-860. <https://doi.org/10.1016/j.chb.2011.12.004>
- 16) Sun, A., & Chen, X. (2016): Online education and its effective practice: A research review. *Journal of Information Technology Education: Research*, 15(1), 157-190.
- 17) Trautner MN, Borland E (2013) Using the sociological imagination to teach about academic integrity. *Teach Sociol* 41:377–388.



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The Influence of Collaborative Learning on Social Skills in Higher Education

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ABSTRACT: This study aims to determine the influence of social skills between students who take part in collaborative learning and discussion. The research method used in this research is true experiment. The use of real experiments in this study aims to determine the causal influence between two factors that are intentionally treated or the treatment group and the control group and to compare the treatment and control that are not subject to treatment conditions. The subjects of this study were psychology students, there are 78 students who were divided into two groups, namely experimental and control. The results of the study showed that there were significant differences between groups that were taught with collaborative learning and groups that were taught by discussion learning. It viewed from the results of the study, it can be seen that the test results on group students who were taught by collaborative learning obtained a higher average value of social skills than the group without being taught by collaborative learning, namely by regular discussion. The average acquisition value of social skills is far adrift between the two groups.

KEYWORDS: collaborative learning, social skill, high order thinking skills, higher education

I. INTRODUCTION

Education and school can affect a person's social skills because in school students learn various skills. Weak social skills can result in low academic performance, absence of friends, rejection, anxiety, and depression (Hosokawa & Katsura, 2017; Sergin & Givers, 2003). One of the skills learned in education is the link between social skills and techniques and various influenceive and efficient learning methods so as to achieve the desired learning goals. Here, lecturers and parents play an important role in the process of maintaining and developing each skill possessed by students. That way, choosing the right learning model will help improve and develop students' social skills.

The Psychology Department has courses covering industrial, developmental, social, learning, educational, personality and clinical psychology which are all related to psychology and require a very deep understanding in studying them. In this course, the task of students is to work in groups to compile papers according to the material that has been determined and then present them in class, so a learning method is needed that encourages students to be able to apply critical & logical thinking, be innovative, and sequentially according to the implementation and development of science and technology. In addition, students are also required to have the initiative in expressing and defending opinions. In other words, students must actively interact with their friends to understand the material and solve problems in a case related to everyday life. Social interaction is a situation in which the behavior of one actor is consciously rearranged by, and influences the behavior of, another actor, and vice versa (Turner, 1988). In this case, social skills are needed by students. Social Skills is a form of adaptive behavior which consists of skills to initiate and maintain social relationships, contribute to developing a positive peer relationship, give consideration to what other people want in the social sphere, and overcome problems that may occur. (Gresham, Van & Cook, 2006; Hupp, LeBlanc, Jewell & Warnes, 2009).

Psychology Department students are required to have good social skills because the field of work that will be involved after graduation is related to the ability to adapt and build relationships with other people. Nowadays, there is a huge need for individuals with high social skills needed and able to adapt to changes in the work environment and social life they live (Johnston, Tobbell & Woolley, 2011). In addition to these abilities, psychology students are also required to be able to understand and apply the psychological theories they have learned to solve existing problems. In other words, undergraduate students majoring in psychology must be able to understand the existing problems and then solve the problem by using the right

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theory in solving the problem at hand. In accordance with the provisions, one of the abilities of graduates (S1) in Psychology, which has been determined by the XIX Psychology Colloquium in 2009 and Decree No. 01/Kep/AP2TPI/2015, which states that a graduate (bachelor degree) in psychology must have: a). mature psychological theory, b). Mastering research methodology, c). mastering the basic principles of psychodiagnostics, d). able to design and perform interventions in non-clinical fields well, e). able to build relationships and communication, f). have ethical behavior and plurality, and g). good soft skills.

Some of the courses in the psychology department's curriculum such as industrial psychology, developmental, social, learning, educational, personality and clinical which are all related to psychology require a very deep understanding in studying them, so social skills are needed to build it all. Social skills can be interpreted as behaviors that include skills such as empathy, communication, joining group activities, cooperation, negotiation, and problem solving that improve the individual's relationship with the environment in a positive way (Lynch and Simpson, 2010). In this course, the task of students is to work in groups to compile papers according to the material that has been determined and then present them in class, so a learning method is needed that encourages students to be able to apply critical & logical thinking, be innovative, and sequentially according to the implementation and development of science and technology. Social skills can be improved through "collaborative learning" learning model. Collaborative means working in groups to achieve the stated goals, while respecting each individual's opinion on the achievement of goals. Collaborative learning is a learning method that interacts with others to increase knowledge.

The appropriate learning model to improve social skills is "collaborative learning". Collaborative learning is considered as a method in which students work in groups and cooperatively help each other to learn, in line with a common goal (Johnson & Johnson, 2009; Sharan, 2015; Slavin, 1995). Collaborative learning has a principle that is considered a positive dependence, besides that there is face-to-face interaction, there are also social skills in it, in addition to individual evaluation, and also evaluation of group processes (Johnson and Johnson, 1992). In other words, collaborative means working in groups to achieve the desired goals, while respecting everyone's opinion on achieving goals. Collaborative learning is a learning method that interacts with others to increase knowledge. Paz Dennen (2000) states that "(educators must) trust students to perform in ways that were not previously determined by the educators", and further explains that "collaborative learning implies that (educators) must rethink the preparation needed when teaching and knowing the various learning activities carried out while teaching" (Roberts, 2008).

Through the explanation above, it can be concluded that the collaborative learning learning model can improve students' social skills in personality psychology courses. Researchers are interested in doing this research because so far there has been no research examining this.

II. METHODS

The research method used in this research is quasi. The research design used was a static-group comparison design, by comparing two groups that were taught by collaborative learning and discussion. The subjects of this study were 78 students of educational psychology, which were divided into two groups, namely experimental and control with 39 students each. The experimental group was treated using collaborative learning, and the control group was treated with discussion.

The data collection method used in this study was a questionnaire used to measure the social skills of the research subjects. The questionnaire scale that will be used in this study uses a Likert scale consisting of four scales. Indicators of self-efficacy in this study include, (1) environmental behavior; (2) interpersonal behavior; (3) self-related behavior; and (4) task related behavior (Carledge and Milburn, 1995). The data analysis technique used in this research is to compare collaborative groups and discussion groups using t-test.

III. RESULT AND DISCUSSIONS

The results of the study show that there are differences in social skills between students who are taught by collaborative learning and those who are not taught by collaborative learning. Based on the results of the significance test (table 2), it shows that the significance level is 0.000 (<0.05). It can be concluded that there are differences in social skills between students who take part in collaborative learning and discussion.

Table 1. Descriptive Results of Social Skills and Learning

Statistics Group					
	Learning	N	Mean	Std. Deviation	Std. Error Mean
Social_Skill	Collaborative	39	162.15	11.094	1.776
	Discussion	39	152.79	11.251	1.802

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Table 2. Collaborative Learning T-Test Results on Social Skills

		Social_Skill		
		Equal variances assumed	Equal variances not assumed	
Levene's Test for Equality of Variances	F	.004		
	Sig.	.952		
t-test for Equality of Means	T	3.699	3.699	
	Df	76	75.985	
	Sig. (2-tailed)	.000	.000	
	Mean Difference	9.359	9.359	
	Std. Error Difference	2.530	2.530	
	95% Confidence Interval of the Difference	Lower	4.320	4.320
		Upper	14.398	14.398
	Difference			

If viewed from the descriptive in (table 1), the average value of the social skills of students who were taught by collaborative learning was (162.15) higher than that of students who were taught by the discussion model of (152.79). This shows that collaborative learning shows better results in the acquisition of social skills.

Collaborative learning can have a positive impact on students' social skills (Polat, 2022). In line with Law's research (2017) which in his research has also proven that collaborative learning has a positive impact on social learning. Collaborative learning is associated with a number of important student outcomes including critical thinking (Loes, 2022). From the results of previous research, it is in line with this research, that collaborative learning has a good influence on students' social skills on the subject of this research.

The influence of collaborative learning on social skills is where lecturers and all students carry out activities together to exchange ideas to create knowledge for the same purpose. Students to briefly turn to one another after important concepts are presented in class to share and compare their understanding (Loes, 2022). The finding in this study is that collaborative learning is able to bring out the social skills of all students involved with each other to collaborate. Collaborative learning activities affect all students in the same way, regardless of race or ethnicity (Loes, 2022). Students who study collaboratively report significantly greater gains in academic motivation as a result of engaging in influenceive learning activities (Loes, 2022).

IV. CONCLUSIONS

There is a significant difference between the groups taught with collaborative learning and groups with discussion learning. It viewed from the results of the study, it can be seen that the test results on group students who were taught by collaborative learning obtained a higher average value of social skills than the group without being taught by collaborative learning, namely by regular discussion. The average acquisition value of social skills is far adrift between the two groups. It can be concluded that collaborative learning has a positive and significant impact on social skills.

REFERENCES

- 1) Cartledge, G. & Milburn, J. F., (1995). Teaching Social Skill to Children and Youth, Boston : Allyn and Bacon.
- 2) Gresham, F. M., Van, M. B., & Cook, C. R. (2006). Social skills training for teaching replacement behaviors: Remediating acquisition deficits in at-risk students. *Behavioral Disorders*, 31 (4), 363–377.
- 3) Hosokawa, R., & Katsura, T. (2017). Marital relationship, parenting practices, and social skills development in preschool children. *Child. Adolesc Psychiatry Ment. Health*, 11(1), 1-8.
- 4) Hupp, S. D. A., LeBlanc, M., Jewell, J. D., & Warnes, E. (2009). History and overview. J. L. Matson (Ed.) In *Social behavior and skills in children* (pp. 1-21). New York: Springer.
- 5) Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Journal of Educational Researcher*, 38 (5), 365-379.
- 6) Johnson, D., & Johnson, R. (1992). *Advanced cooperative learning*. Edina, MN: Interaction Book Company.
- 7) Johnston, J., Tobbell, C., & Woolley, R. (2011). *Personal, social and emotional development*. New York, NY: Continuum International Publishing

The Influence of Collaborative Learning on Social Skills in Higher Education

- 8) Law, Q. P., So, H. C., & Chung, J. W. (2017). Influence of Collaborative Learning on Enhancement of Students' Self-Efficacy, Social Skills and Knowledge towards Mobile Apps Development. *American Journal of Educational Research*, 25-29.
- 9) Loes, Chad N. (2022). The Influence of Collaborative Learning on Academic Motivation. *Teaching & Learning Inquiry*, 10
- 10) Lynch, S. A., & Simpson, C. G. (2010). Social skills: Laying the foundation for success. *Dimensions of Early Childhood*, 38 (2), 3-11.
- 11) Paz Dennen, V. (2000). Task Structuring For Online Problem Based Learning: A Case Study. *Educational Technology & Society*, 329-336.
- 12) Polat, Özgül, Türker Sezer, Nevra Atış-Akyol. (2022). Collaborative Learning with Mind Mapping in the Development of Social Skills of Children. *Participatory Educational Research (PER)*. 9(1), 463-480
- 13) Roberts, T. S. (2008). *Online Collaborative Learning: Theory and Practice*. Queensland: Information Science Publishing.
- 14) Sergin, C., & Giverts, M. (2003). Methods of social skills training and developments. In J. O. Grene ve B. R. Burlison (Eds.), *Handbook of communication and social interaction skills* (pp.135-178). NJ: Lawrence Erlbaum Associates.
- 15) Sharan, Y. (2015). Meaningful learning in the cooperative classroom. *Education 3-13*, 43 (1), 83–94.
- 16) Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice*. Boston: Allyn and Bacon.
- 17) Turner, H. Jonathan. (1988). *A Theory of Social Interaction*. California: Stanford University Press



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The Importance of Developing Online Counseling Services for Family Planning Programs in Indonesia



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ABSTRACT: One of the reasons for the high of contraceptive acceptors drop out is the low number of contraceptive information received by clients. Indonesian Population Demographic Survey in 2017 stated that only 29% of women in Indonesia received contraceptive information including contraceptive side effects, how to deal with side effects, and alternative contraception that can be used. This is due to a limited number of family planning instructors, and a large number of tasks that health workers must carry out, especially midwives as the largest source of contraceptive services in Indonesia. The solution to overcome the low level of contraceptive information services is to build an online counseling service for family planning programs. Online counseling services based on digital technology are flexible and can be accessed by anyone who needs information. For this reason, this technology must be built on an evidence-based basis and a good reputation, so it is hoped that in addition to meeting the need for family planning information, it is also able to change behavior for the use of appropriate contraception.

KEYWORDS: contraception, online counseling, information technology.

Information technology in Indonesia has been widely developed, including information technology for family planning programs. However, information technology utilization is only carried out by a limited group, either by the provider or by the service recipient community. For this reason, researchers are challenged to find out how important information technology needs for family planning programs in Indonesia. One of the family planning programs in Indonesia is counseling and contraception services.

Family planning information service in Indonesia is still low. The Indonesian Population Demographic Survey in 2017 stated than only 29% of women in Indonesia received complete information on contraceptive methodes (1). The data is data before the covid-19 pandemic and during the covid-19 pandemic, all access to health facilities including contraceptive services is very limited. So, it is very possible that exposure to information, especially about contraception, will also decrease. Another issue in Indonesia is limited Human Resources (HR) for family planning counselors who have the main task of providing family planning information. Current condition 1 family planning counselor coach 3-4 villages, ideally are to develop at most 2 villages (2). A strategic effort to increase information access is to build online counseling services for family planning programs. Counseling services are needed by Indonesian people. Through community counseling, it can be encouraged to arrange pregnancy intervals and assist prospective acceptors in making decisions on appropriate contraception utilization (3). Counseling services have also been shown to be able to reduce unmet needs and increase contraceptive use (4). Data in Indonesia showed that the prevalence of unplanned pregnancy during the pandemic reached 20.3% (5). For this reason, it is very important to build counseling services to reduce the prevalence of unplanned pregnancies.

Contraception counseling services that have been carried out are face-to-face. With face-to-face counseling, officers can directly see the verbal expressions or movements of the client, so that counselor can easily find out if the material presented has been understood by the client. However, face-to-face counseling has the disadvantage of not being able to reach all people who need information on family planning services, which is due to limited time and distance to visit health facilities conversely, there are limitations of family planning counselors to reach a large number of people, on the other hand, online or digital services can flexible and can reach the wider community (6). For this reason, an alternative strategy that can be implemented is to build online contraceptive services for family planning programs.

Online contraception services for family planning programs are very appropriate to be developed in this digital era. The target of family planning programs in this digital era is the Z generation and the alpha generation who are very adept with technology. For this reason, counseling services can be in the form of applications or web-based counseling services that contain information

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about family planning programs and contraceptive services. Reproductive health is presented attractively with writings, pictures, and videos, also equipped with interactive dialogue between clients and counselors.

Online or digital-based family planning services have been developed in many countries and have proven to be effective. Digital services are easily accepted by the public, relatively low costs can find out information in real-time, and have an impact on knowledge and increase modern contraception utilization (7–10). For these digital-based services to change behavior, these digital services must be easily accessible, evidence-based, and have a good reputation (11).

To realize the online contraceptive service for this family planning program, support from various parties is needed, including program holders, providers, and communities. Policymakers, in this case, the Indonesian National Population and Family Planning Board, must be able to provide breakthroughs to the community so that this counseling service is widely socialized and can be utilized by the community properly.

REFERENCES

- 1) BKKBN, Badan Pusat Statistik, Kementerian Kesehatan, USAID. Survei Demografi dan Kesehatan Indonesia 2017. SDKI. 2017. 101 p.
- 2) Surapati SC. Sinergi Dukungan Kegiatan dan Anggaran BKKBN dalam Peningkatan Pelayanan KB di Fasilitas Kesehatan. BKKBN; 2017.
- 3) Christine Dehlendorf MM. Contraceptive counseling and selection for women-UpToDate Contraceptive counseling and selection for women. 2019;1–10.
- 4) Cavallaro FL, Benova L, Owolabi OO, Ali M. A systematic review of the effectiveness of counselling strategies for modern contraceptive methods: what works and what doesn't? *BMJ Sex Reprod Heal.* 2020;46(4):254–69.
- 5) Supriyadi. Pandemi, Kehamilan Tak Diinginkan, dan Stunting [Internet]. detik news. 2022 [cited 2022 Sep 6]. Available from: <https://news.detik.com/kolom/d-6021034/pandemi-kehamilan-tak-diinginkan-dan-stunting>
- 6) Marcu G, Ondersma SJ, Spiller AN, Broderick BM, Kadri R, Buis LR. The Perceived Benefits of Digital Interventions for Behavioral Health: Qualitative Interview Study. *J Med Internet Res.* 2022;24(3).
- 7) Kamulegeya LH, Bwanika JM, Banonya J, Atuhaire J, Musinguzi D, Nakate V, et al. Feasibility and Acceptability of a Ugandan Telehealth Engagement Platform for Informational Messaging on Modern Contraception: Pilot Cross-sectional Study. *JMIR Form Res.* 2022;6(6).
- 8) Yousef H, Al-Sheyab N, Al Nsour M, Khader Y, Al Kattan M, Bardus M, et al. Perceptions toward the use of digital technology for enhancing family planning services: Focus group discussion with beneficiaries and key informative interview with midwives. *J Med Internet Res.* 2021;23(7).
- 9) Johnson AK, Haider S, Nikolajuk K, Kuhns LM, Ott E, Motley D, et al. An mHealth Intervention to Improve Pre-Exposure Prophylaxis Knowledge Among Young Black Women in Family Planning Clinics: Development and Usability Study. *JMIR Form Res.* 2022;6(7):e37738.
- 10) Lefevre AE, Shah N, Scott K, Chamberlain S, Ummer O, Bashingwa JJH, et al. The impact of a direct to beneficiary mobile communication program on reproductive and child health outcomes: A randomised controlled trial in India. *BMJ Glob Heal.* 2022;6:1–22.
- 11) Walker RE, Quong S, Olivier P, Wu L, Xie J, Boyle J. Understanding Preconception Women's Needs and Preferences for Digital Health Resources: Qualitative Study. *JMIR Form Res.* 2022;6(8)



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Impact of Covid-19 on the Employment of BS Tourism Management Graduates



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ABSTRACT: The COVID-19 pandemic affects different business sectors and the tourism industry has no exception from this. As the world is still affected by the pandemic, tourism management graduates' employment is affected as the tourism industry lay off employees every now and then. The purpose of this study is to determine the impact of COVID-19 to the employment of BS tourism management graduates. With the use of a random selection of samples, the researchers gathered data from 50 BS tourism management graduates of the academic year 2019-2020 and 2020-2021 examined in the descriptive-correlational study. The findings indicate what factors mostly affect the employment of graduate students during the time of the pandemic. On the other hand, the pandemic does not limit the capabilities of these graduates and is not a reason for companies to close their doors for these graduates' despite of the left-and-right unemployment. The pandemic has caused great uncertainty on their employment as they worry about their job security. The pandemic affects the monthly wages of the employees in the tourism sector as it caused to an income loss, and it led to financial instability for employees. Moreover, strengthening one's mental health is one of the keyways for the students to continue seeking jobs and to work. The socio-demographic profile of the respondents has no significant relationship to the impacts of Covid-19 pandemic.

KEYWORDS: COVID-19 pandemic, tourism management graduates, employment, capabilities, job security, employees' wages

I. INTRODUCTION

The COVID-19 outbreak has prompted significant economic disruptions around the world. It has largely halted international travel and had a severe impact on tourism. One of the major sources of employment, economic growth, and foreign exchange profits is the tourism industry. Without such a vital connection, many countries might be seeing DP and an increase in unemployment. The tourism sector has been severely impacted by the COVID-19 outbreak. According to the World Tourism Organization, the closure of borders, airports, and hotels, as well as limits on public gatherings, land travel, and related services, threatens 100 to 120 million employees nationwide. Since the COVID-19 pandemic is estimated to affect approximately all occupations in the tourism sector, a quantitative assessment of the number of jobs are at risk in the region begins with the total percentage of workers in the tourism sector. This current pandemic had a significant impact on the region's aviation transport industry when foreign visitors began cancelling scheduled flights and governments began locking their borders as part of general emergency reactions. It has an impact on the economy as well as on standards and values, modifying them to develop a completely new chain of values. According to IATA research (2020), the passenger earnings for the region's aviation industry will be almost US\$ 88 billion lower this year than in 2019, and also most airline carriers will have less than three months of liquidity to get them through this period of instability.

The coronavirus pandemic is having a major impact on people's willingness and freedom to transport, as well as their travel choice. The worst scenario would indeed be a serious second wave, featuring border restrictions and very low rates of domestic flights placing an enormous burden on jobs and businesses. In this situation, airlines have taken extraordinary steps, such as putting employees on paid or unpaid leave, enforcing compensation cuts, or laying off employees. The immediacy and good organization become less important as social distancing and security grow increasingly important. Businesses and supply networks are being relocated and shut down in practically every industry, and governments are putting economies on hold and hoarding essential supplies. The tourism industry can be considered going through an enormous crisis era. As the hotels, resorts, tour operators, airlines, and other tourism-related services are temporarily limited to operate. As a result of the pandemic, the tourism industry is experiencing unprecedented hurdles. The COVID-19 outbreak has resulted in health insecurity, an employment crisis and an economic decline. This study creates a framework that highlights the impact of COVID-19 on the employment of recent

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tourism management graduates. Through this study, the researchers will be able to identify those impacts and will be able to conduct possible solutions for the problems encountered.

The study aimed to answer the impact of COVID-19 recent tourism management graduates' employment of the academic year 2019-2021. Specifically, it sought to answer the following questions:

1. How may the socio-demographic profile of the respondents be described in terms of:

- 1.1 Age
- 1.2 Sex
- 1.3 Civil Status
- 1.4 Employment Status
- 1.5 Name of School Graduated
- 1.6 Year Graduated

2. How may the impacts of Covid-19 on the employment of 2019-2020 and 2020-2021 BS Tourism management graduates be described in terms of?

- 2.1. Career Opportunities
- 2.2. Job Security
- 2.3. Financial Stability

3. Is there a significant relationship between the socio-demographic profile of the respondents and the impacts of Covid19 pandemic?

II. LITERATURE REVIEW

The Impact of Covid-19 pandemic in the Philippines

The tourism industry has already suffered serious effect of the pandemic outbreak on its operations. Travel restrictions and measures all over the world began as early as January of 2020, affecting Philippine global tourism flows. Domestic tourism, on the other hand, have restricted their trip due to the risk of catching COVID-19. According to the Department of Tourism, international tourist receipts in the first quarter of this year were PHP85 billion, a 36% decrease (Cabrera et al., 2020). In a recent correspondence, Aquino et al., (2021) stated that private sector companies can promote best practice methods to protect their employees from COVID-19, such as vaccination programs, as social responsibility could even be outlined personal accountability. As Masigan, (2021) pointed out that just before the pandemic caused chaos on the industry; in 2019, travel and tourism contributed for 12.7 percent of GDP, or around \$47.8 billion in products and services. That same year, the Philippines received 8.26 million foreign visitors, who spent \$11 billion in the country. Domestic tourism brought in the remaining \$36.6 billion. In terms of employment, the industry employs 1.3 million of our compatriots directly. He even stated, that "33% of all travel and tourism employees in the Philippines were laid off. The IATA travel pass provides us reasonable grounds for believing that international and domestic travel will become available. With this, we can start rebuilding our lives and economies." Taking all of this into account, it is difficult to see how a comprehensive economic recovery can be achieved without the restoration of travel. Furthermore, Go et. al (2021) emphasized the industries that are at significant risk of job loss, suffering the effects of the COVID-19 crisis are manufacturing; transportation and storage; tourism and hospitality industry as well as food service activities; arts. Tourism as well as leisure and recreation apart from the anticipated immediate job losses particularly prone to employment losses through indirect means arising as a result of the global supply chain connection.

The Impact of Covid-19 pandemic in the World Economy

According to the World Health Organization (WHO), "coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus". Illness caused by SARS-CoV-2 was termed COVID-19 by the WHO, the acronym derived from "coronavirus disease 2019." A severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the seventh human coronavirus, was discovered in Wuhan, Hubei province, China, during the recent epidemic of pneumonia in January 2020. Since then, the virus has spread over the world, infecting 247,968,227 people, and killing 5,020,204 people as of November 4, 2021. To name was chosen to prevent stigmatizing the virus's origins in terms of population, geography, or animal associations (Cennimo et al., 2020). Aside from early lockdowns and slow resumption of economic business, the public has been advised to maintain social distance, practice proper hygiene, wear masks, and limit gatherings unless absolutely necessary (Agarwal et al., 2020).

According to studies, the decline in Travel Tourism GDP in 2020 could have been as high as US\$ 2.1 trillion. WTTC also anticipates a daily loss of one million jobs in the tourism and travel business due to the global spread of the COVID-19 pandemic. According to the World Travel and Tourism Council's (WTTC) most recent study report, up to 75 million employees face immediate

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employment loss as a result of COVID-19. Crisis is often a change catalyst; however, no crisis has become a significant transitioning event in tourism thus far (Hall et al., 2020).

Tourism plays a significant role in economic developments in the world economy, and a boost in the tourism sector could have a positive effect on the economy. A great number of prior researchers have considered the tourism industry's significant role in economic development (Gamage et al., 2020). Tourism has been recognized as one of the leading engines for economic and job creation growth by the World Tourism Organization (WTO). According to Faiza et al. (2019) and Gamage et al. (2020), "tourism is the fastest growing industry in both developed and developing nations, and that it's the largest generator of career opportunities as well as the top income generator in an economy". Furthermore Manzoor et al., (2019), findings that the tourism industry's growth plays a significant contribution in both economic growth as well as in creating employment opportunities.

On the other hand, the first study worldwide to look into the possible impact of the COVID-19 crisis on career opportunities and outcomes was conducted by Baert, (2020). That goal, a high-quality survey investigation was performed with a relevant population of Belgian employees. About 21% of them are anxious about losing their employment as a result of the crisis, and 14% are afraid of losing their positions in the near future. Furthermore, 26% expect to lose promotions that they would have received had the COVID-19 problem not arisen. This worry of an adverse effect is more prevalent among vulnerable groups, such as migrants. Covid-19 means a disaster for the tourism and hospitality service sector. Millions of jobs have been destroyed temporarily, and many businesses have been damaged. A serious recession is predicted in the medium to long term, which will have a long-term impact on pleasures such as tourism and hospitality (Butcher, 2020). The pandemic's implications on the country's inbound, outbound, and domestic tourism, travel packages, business events, and cruise vacations has indeed been visible (Dash et al., 2020). Moreover, Divya (2020) found that the predictions and preparations for the aftermath of a lockdown would necessitate a greater grasp of the existing circumstances. To that aim, hospitality practitioners believe that trends such as "staycations" and "workcations" will continue to dominate in the near future.

Moreover, Quintana, Nguyen, Cabrera and Díaz (2021), studied that the job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance and the moderating role of employee resilience. The COVID-19 health catastrophe impacted negatively on the global service industry, affecting millions of individuals. They look at how job insecurity affects hotel employees' anxiety and sadness, and how these psychological pressures affect employees' identity job performance during in the COVID-19 pandemic. In addition, the study investigates the moderating influence of hotel employees' resiliency in this circumstance. Career progression is an important moderator. The importance of job security in the relationship between work happiness and job security (Yeves et al., 2019) that if insecurity has negative consequences, job security makes employees feel valued, which is critical for achieving efficiency and organizational competitiveness. Job security has a direct impact on promotion opportunities, recognition, and participation in decisionmaking, all of which contribute to job satisfaction (Mehrabian et al., 2013).

Moreover, the study conducted by Reinders, Schoenmaker, Van Dijk, (2020) recognized the catastrophic economic consequences of the COVID-19 outbreak could jeopardize financial stability. However, measuring the extent of this threat is difficult due to banks' sluggish accounting-based loan loss provisions. They utilize a Merton contingency claims framework to make a definitive, market valuation-based evaluation of the impact of COVID-19 on the corporate debt securities of European banks. Huang and Saxena (2020), pointed out that COVID-19 pandemic is bringing unprecedented economic and development concerns. Policy lessons from Asia and the Pacific's prior experience coping with shocks demonstrate that relying solely on economic growth is insufficient. Rising income inequality and environmental risks exacerbated the region's fragility. The recovery from the epidemic in Asia and the Pacific should prioritize the 2030 Agenda for Sustainable Development. Governments must enhance the public involvement in the Sustainable Development Goals, eliminate disparities, offer decent work, green economic output and monetary systems—in addition to standard macroeconomic measures. Technological developments and long-term finance could make the process easier. To "build forward better," all stakeholders, including governments, corporations, and the general people, must play an active part. "Although the tourism industry's future may appear gloomy at the moment, the tourism business is not one to overlook when seeking for a future career" (Lena et., al 2021). When the lockdown lifts and borders reopen, we may see an influx of tourists as people begin to travel again adapting the new normal.

Six months after the COVID-19 outbreak, it is indeed unclear when such world economic and social life will restart, as tourism, hospitality, and other supporting industries prepare for recovery. As a result, despite vaccine breakthroughs, it is critical to forecast the impact of the COVID-19 pandemic on the tourism industry, as well as the impact of government measures in assisting the industry's post-recovery. A firm grasp of the pandemic's impacts is likely to provide tourism industry performers with significant insights into how to establish and apply the best decision-making structures that can, in turn, guarantee quick response to unexpected events that threaten the financial viability of their companies (Fotiadisa et al., 2021).

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COVID-19 is largely regarded as a challenge, if not a game-changer, in the field of travel and tourism. It has also sparked considerable controversy in the "tourism academia," as evidenced by an email exchange on the Tourism Information Network (TRINET) in May 2020. An email from scholar Jim Butcher announcing his study dubbed "the war on tourism," which was published in an online publication, sparked this controversy. Butcher's paper, which presented a dichotomy between industry recovery and reform, attacked a body of tourist work that he viewed as unfriendly to the business and used COVID19 as an opportunity to attack it. He claimed that this harmed tourism businesses, tourism workers, and ordinary tourists. When formulating disaster recovery strategies, both tourism enterprises and organizations rely on recovery predictions. Numerous studies on tourism forecast have relied on statistical methods such as time-series data, statistical, and artificial intelligence (Higgins-Desbiolles, 2020).

Although the COVID-19 pandemic has affected tourist production, it has also offered operators with chances to think about tourism reformation and innovation, global collaboration, and regional connection. The World Tourism Cities Federation reported in "Recovery and Development of World Tourism amid COVID-19" (World Tourism Cities Federation, 2020) that authorities are taking a number of steps to rehabilitate their countries' tourism sectors. They are developing staged recovery plans based on forecasting data, boosting smart and digital tourism, restoring confidence in tourist sectors, offering financial assistance, and stimulating spending (Zhang et al., 2021). Forecasting tourism demand is an important element in the process of recovery since it informs judgments about the best course of action. Demand forecasts are used in development of strategic, such as budgeting, sales, marketing, and resource allocation (Huan et al., 2021). Due to the general COVID-19 pandemic's turbulence, tourism recovery should be a continual process based on a phased-action plan directed at matching markets (World Tourism Cities Federation, 2020).

According to Zenker and Kock (2020), tourists' views of safety, health infrastructure, mass-tourism events, and other COVID19-affected connections may influence destination images. Beginning in 2019, societal instability and COVID-19 began to erode tourists' trust and willingness to visit a destination. However, Pouliakas and Branka (2020) and Fana et al. (2020), examined the workplace sections that the most likely to be adversely affected by social distancing policies and measures as a result of the COVID-19 pandemic are women, non-natives, and others with non-standard transactions, the less educated, those employed in micro-sized working places, and low-salary workers.

The literatures found by the researchers are related to the present study. The cited literatures provide meaningful background about the study as it supports the study's objective of knowing the impact of COVID-19 pandemic on recent Tourism Management graduates' employment. The related literatures talk about the COVID-19 pandemic and its effects on the economy in local and international perspective particularly in hospitality and tourism industry. Thus, it supports the present study wherein the researchers are trying to find out the effects of the pandemic on the employment of the recent graduates.

III. CONCEPTUAL FRAMEWORK

In order to develop a conceptual framework for the research, this study compiled concepts and theories pertaining to the implications of Covid-19 on the Tourism and Hospitality business, specifically on its employment opportunities. This study aims to evaluate the effects of Covid-19 on the employment of BS Tourism Management graduates Class of 2019-2020 and 2020-2021 in terms of career opportunities, job security, and financial stability. In this premise, the following hypothesis has been proposed:

H1: There is significant relationship between the socio-demographic profile of the respondents and the impacts of Covid-19 pandemic

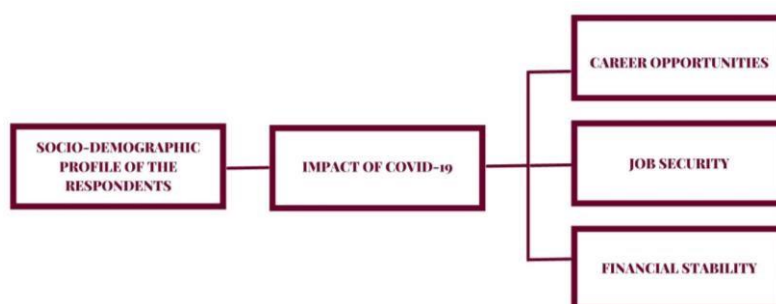


Figure 1. Research Paradigm

IV. METHODS

This study used the descriptive method of research with correlational approach to determine the impacts of COVID-19 on the recent Tourism Management graduates' employment and to examine if there was a significant relationship between the

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Sociodemographic profile of the respondents and impacts of COVID-19 on the recent Tourism Management graduates' employment.

Probability sampling is the method used in this research because it utilizes a random selection of sample in the population. To be precise, simple random sampling is used. It fits the researchers' goal in selecting the samples wherein they will randomly select 50 respondents from the whole population of Tourism Management graduates of the academic year 2019-2020 and academic year 2020-2021 in Cabanatuan City.

Data Gathering Procedure

The close-ended questionnaires made by the researchers are disseminated with the aid of social media. Google Forms' links were sent to the participants since face-to-face distribution of survey form is not possible. The administration conduct of the test lasted for three days, and the researchers set a common time for them to answer the questionnaire.

Data Analysis

The researchers analysed data through computing the weighted mean, frequency, percentage and t-test of the answers that were collected on the survey questionnaires that were distributed. The weighted mean helped in determining the average of the numbers from each question indicated on the survey questionnaire, on solving the mean: add up all the numbers and divide on the total number of respondents (50). The frequency helped in determining how many respondents answered on a particular selection of answers, on solving the frequency tally the survey questionnaire first then count the number of answers on each selection. The percentage helped in comparing the difference between the different questions, on solving the percentage divide the total numbers on each selection then divide to the total number of respondents (50) and then multiply it to 100. A twotailed t-test was performed in this study to examine if the two populations are different from one another.

The data analysis of Microsoft Excel 2010 researchers and Statistical Package for Social Sciences (SPSS) were utilized for the computations of data collected from the respondents in the survey questionnaire.

V. RESULTS AND DISCUSSIONS

The Socio-demographic Profile of the Respondents

TABLE 1.1. AGE OF THE RESPONDENTS, N=50

TABLE 1.1 presents the age of the respondents.

	Frequency	Percentage
20–24	36	72%
25–30	14	28%
TOTAL	50	100%

It shows that the respondents with the age of 20–24 got the highest frequency of 36 or 72 percent. On the other hand, the respondents with the age of 25–30 got the lowest frequency of 14 or 28 percent. This implies that most of the tourism management graduates during pandemic were in the age range of 20-24 years old.

The community college consists of a diverse population of students, ranging from 18- years old to adults over 40.

Provasnik and Planty (2008) indicated that the median age of community college students is 24 years old.

TABLE 1.2. SEX OF THE RESPONDENTS N=50

Table 1.2 presents the sex of the respondents.

	Frequency	Percentage
MALE	20	40%
FEMALE	30	60 %
TOTAL	50	100%

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It shows that female respondents got the highest frequency of 30 or 60 percent. On the other hand, male respondents got the lowest frequency of 20 or 40 percent. This implies that most of the results gathered came from the female population, and most of the tourism management graduates during pandemic were female.

This result was supported by a study conducted by Korir (2012), she indicates that majority of students in the hospitality and tourism sectors are female, and females are more interested in programs of hospitality and tourism than males.

TABLE 1.3. CIVIL STATUS OF THE RESPONDENTS, N=50

Table 1.3 presents the civil status of the respondents.

	Frequency	Percentage
SINGLE	43	86%
MARRIED	7	14%
TOTAL	50	100%

It shows that 43 or 86 percent of the respondents were single, while 7 or 14 percent of the respondents were married. This implies that the majority of the respondents were single. Previous research implies that marital status discrimination in the workplace affects the perceptions of women and men differently (Jordan et al., 2012; Renwick & Tosi, 1978). Single people tend to seek job easier as they don't have the same commitment as married ones. Because they may not have any financial assistance, singles are more proactive and assertive in their job hunt.

TABLE 1.4. EMPLOYMENT STATUS OF THE RESPONDENTS N=50

Table 1.4 presents the employment status of the respondents.

	Frequency	Percentage
EMPLOYED	23	46%
UNEMPLOYED	27	54%
TOTAL	50	100%

It shows that unemployed got the highest frequency of 27 or 54 percent. On the other hand, employed got the lowest frequency of 23 or 44 percent. This implies that the majority of the respondents were unemployed due to Covid-19 pandemic.

According to Barroso (2021), the class of 2020 graduates faced out from their virtual commencements into a very darker economic future than their predecessors the year prior - one shattered by a crisis brought on by a pandemic that has been extremely severe on young employees. According to a new Pew Research Center examination of Bureau of Labor Statistics data from January through October, the difficulties of a pandemic economy are visible in the labor market results of 2020 college graduates, who have encountered a drop in employment and workforce participation as 2020 college graduates are less likely to be employed or in the labor force than their 2019 counterparts.

TABLE 1.5. NAME OF SCHOOL GRADUATED OF THE RESPONDENTS, N=50

Table 1.5 presents the name of school graduated of the respondents.

	Frequency	Percentage
AU	18	36%
WU-P	17	34%
OLFU	15	30%
TOTAL	50	100%

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It shows that AU got the highest frequency of 18 or 36 percent of the respondents; while 17 or 34 percent were graduated from WUP and OLFU got the lowest frequency of 15 or 30 percent of the respondents. This implies that the majority of the results gathered came from PHINMA Araullo University.

TABLE 1.6. YEAR GRADUATED OF THE RESPONDENTS, N=50

Table 1.6 presents the year graduated of the respondents.

	Frequency	Percentage
2019-2020	32	64%
2020-2021	18	36%
TOTAL	50	100%

It shows that graduated from SY 2019 - 2020 got the highest frequency of 32 or 64 percent. On the other hand, graduated from SY 2020 – 2021 got the lowest frequency of 18 or 36 percent. This implies that the majority of the respondents were graduated from the Academic year 2019-2020.

The Impacts of COVID-19 on the Employment of 2019-2020 and 2020-2021 BS Tourism Management Graduates

TABLE 2.1. CAREER OPPORTUNITIES, N=50

Table 2.1 presents the career opportunities of the recent tourism graduates' employment during COVID-19 pandemic.

Statements	WM	Verbal Description
1. Post-pandemic graduates have more chance of getting hired.	2.56	Agree
2. Covid-19 crisis gives me the opportunity to look for the best employer.	2.40	Disagree
3. Covid-19 crisis gives me the opportunity to explore and increase my skills and competency.	2.80	Agree
4. The pandemic did not restrict tourism management graduates' career opportunities.	2.32	Disagree
5. Tourism management graduates are hired to different sectors despite of the pandemic.	2.80	Agree
6. Companies sees pandemic graduate less competent since they had they're on the job training online.	2.52	Agree
Overall Weighted Mean	2.57	Agree

The table shows that the overall weighted mean was 2.57 with a verbal interpretation of "Agree" of the statements; "Covid-19 crisis gives me the opportunity to explore and increase my skills and competency." and "Tourism management graduates are hired to different sectors despite of the pandemic." both got the highest weighted mean of 2.80 which verbally interpreted as "Agree". On the other hand, the statement "The pandemic did not restrict tourism management graduates' career opportunities." got the least weighted mean of 2.32 with a verbal interpretation of "Disagree."

This implies that despite the pandemic, graduates in the following program were still hired. Therefore, tourism and hospitality industry was still operating and existing and this crisis were able them to explore their career as well as increase their skills and competency.

Blokker et al. (2019), indicate that those who build reflective, communicative, and behavioral professional competencies are better positioned to capitalize on positive career shocks like unexpected rewards. Whereas career shocks are generally difficult to estimate and prevent, the individual component of coping with them is frequently modifiable, implying that there is a lot to do in terms of anticipating and efficiently dealing with them. Developing career competencies is one of them. Career competencies can, in fact, help people become more employable and engaged, as well as more perseverance in the face of setbacks.

TABLE 2.2. JOB SECURITY, N=50

TABLE 2.2 presents the job security of the recent tourism graduates' employment during COVID-19 pandemic.

Statements	WM	Verbal Description
1. I worry about my job security.	2.96	Agree
2. I am certain of my job environment it gives me a feeling of safety.	2.78	Agree

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3.	Satisfied with the government excellent job of supporting employees in tourism sector during the Covid-19 crisis.	2.64	Agree
4.	My workplace operational system still in fully operational condition.	2.66	Agree
5.	The wage I have received during the pandemic is stable.	2.36	Disagree
6.	There are no employees in the company experience laid off or retrench as a factor of the pandemic crisis.	2.36	Disagree
Overall Weighted Mean		2.63	Agree

The overall weighted mean was 2.63, with a verbal interpretation of “Agree”. The statement “I worry about my job security” got the highest weighted mean of 2.96 which is interpreted as “Agree”. On the other hand, the statement “The wage I have received during the pandemic is stable.” and “There are no employees in the company experience laid off or retrench as a factor of the pandemic crisis.” both got the least weighted mean of 2.36 which verbally interpreted as “Disagree”. This implies that the pandemic makes them worry about their job security because of the left-and-right retrenchment.

According to Pacheco et al., (2020), workplaces have had to make considerable changes in their operations as a result of the present coronavirus (COVID-19) outbreak. This, combined with the current economic uncertainty, may put people at risk of job insecurity and, as a result, reduced well-being. Job insecurity is a major factor of happiness, but little is known about how it is affected by public health emergencies, and how it connects to workers' positive and negative well-being during a pandemic. There is a shortage of research on the resilience levers that should be targeted by workplace interventions to improve wellbeing in times of uncertainty.

TABLE 2.3. FINANCIAL STABILITY, N=50

TABLE 2.3 presents the financial stability of the recent tourism graduates' employment during COVID-19 pandemic.

Statements		WM	Verbal Description
1.	I am concerned that my current employment status affects my future financial security.	3.14	Agree
2.	I'm afraid that with the skeletal workforce, I will not be able to pay my bills.	2.96	Agree
3.	Because of the current hiring status my savings are decreasing instead of increasing.	3.02	Agree
4.	My family expects me to work after graduation to help with our monthly expenses.	3.10	Agree
5.	The pandemic affects the monthly wages of the employees in the tourism sector.	3.38	Strongly Agree
Overall Weighted Mean		3.12	Agree

The overall weighted mean was 3.12 with a verbal interpretation of “Agree”. The statement “The pandemic affects the monthly wages of the employees in the tourism sector.” got the highest weighted mean of 3.38 which verbally interpreted as “Strongly Agree”. On the other hand, the statement “I'm afraid that with the skeletal workforce, I will not be able to pay my bills.” got the least weighted mean of 2.96 which is verbally interpreted as “Agree”. This implies that a lot of companies in the tourism sector are still surviving because of the pandemic lockdown therefore, it affects the employees' monthly wages.

As stated in Chapter 2, it is proven that authorities are taking a number of steps to rehabilitate their countries' tourism sectors. They are developing staged recovery plans based on forecasting data, boosting smart and digital tourism, restoring confidence in tourist sectors, offering financial assistance, and stimulating spending (Zhang et al., 2021).

The Significant Relationship between the Socio-Demographic Profile and the Impacts of COVID-19 pandemic

Table 3. reveals the relationship between the Socio-Demographic Profile of the respondents and the Impacts of COVID-19 pandemic.

Profile		Impact	Interpretation
	Correlation Coefficient	-.099	No significant relationship
Age	Sig. (2-tailed)	.495	

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	N	50	
	Correlation Coefficient	.024	No significant relationship
Sex	Sig. (2-tailed)	.868	
	N	50	
	Correlation Coefficient	-.202	No significant relationship
Civil Status	Sig. (2-tailed)	.160	
	N	50	
	Correlation Coefficient	.049	No significant relationship
Employment Status	Sig. (2-tailed)	.737	
	N	50	
	Correlation Coefficient	-.117	No significant relationship
Name of School	Sig. (2-tailed)	.419	
	N	50	
	Correlation Coefficient	-.110	No significant relationship
Year Graduated	Sig. (2-tailed)	.446	
	N	50	

The results revealed that there was no significant relationship between the Socio-Demographic profile of the respondents and the impact of COVID-19 on recent tourism graduates' employment.

VI. CONCLUSION AND RECOMMENDATION

Based on the above findings; the following statement has been concluded. The researchers performed the research on recent tourism graduates' employment from the Academic year 2019-2021.

1. Majority of the respondents are 20 – 24 years old, female, single, unemployed, and graduated from Araullo University SY 2019-2020.
2. In career opportunities, most of the respondents agreed that the COVID-19 crisis gives them the opportunity to explore and increase their skills and competency. Also, the recent tourism management graduates are hired to different sectors despite of the pandemic, meaning COVID-19 makes the recent tourism graduates more competent in their chosen career and it enables them to look for a career in the different sectors.
3. In job security, the majority of the respondents agreed that they worry about their job security, meaning in terms of job security this pandemic has caused great uncertainty on their employment.
4. In financial stability, most of the respondents agreed that the pandemic affects the monthly wages of the employees in the tourism sector, meaning this pandemic caused an income loss and it led to financial instability to employees as it affects their monthly wages.
5. The researchers found out that there was no significant relationship between the Socio-Demographic profile and the impacts of COVID-19 pandemic on recent tourism management graduates' employment.
6. As concluded, the null hypothesis of study 1 was accepted as there was no significant relationship between the Sociodemographic profile of the respondents and the impact of Covid-19 on tourism graduates' employment.

Based on the findings and conclusions stated above, the researchers recommend that Tourism Management graduates must continue to seek jobs in order to sharpen and broaden their skills, may it be related to their graduate course or not because one way or another, they will be able to discover new skills and improve their competencies. Moreover, companies are highly encouraged to accept pandemic graduates because virtual learning does not make them less competent than those who finished their academic in a traditional setting. On the other hand, employees are worried about their financial stability thus, the wage they're receiving is not stable and companies does not ensure their employment since the laying-off of employees happened from

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left to right since that pandemic happened. With that being said, companies must be careful about cutting off employees and should consider their employee's contribution to the organization when deciding whom to cut and whom to bring back when conditions improve. On the contrary, employees should have a backup plan to secure their finances. Part-time job, and online business are some of the examples that can help them to aid their finances.

For the future researchers to conduct a similar study which determines the other impacts of Covid-19 pandemic to Tourism Management graduates with a larger scope and different factors that influence the graduates such as competency rate. Lastly, the researchers encourage the parents and guardians of the graduates to continue to support them as they seek jobs or work during this time of pandemic as competition and crisis in the industry rises. Strong family support is what they need as their mental health could be at risk too with everything that's happening.

REFERENCES

- 1) A. Cabrera, M. Divinagracia, G. Longa, K. Rogacion, E. Abalos, N. Chan. (2020, July). *Impact of COVID-19 on the Philippine Tourism industry*. Google. Retrieved from <https://www.pwc.com/ph/en/publications/tourism-pwc-philippines/tourismcovid-19.html>
- 2) A. Divya. (July 01, 2020) *Hospitality Sector Gears up for a New Post-Lockdown Normal*. Google scholar. Retrieved <https://indianexpress.com/article/business/hospitality-sector-gears-up-for-a-new-post-lockdown-normal-6482394/>
- 3) Krishna Mohan Agarwal, Swati Mohapatra, Prairit Sharma, Shreya Sharma, Dinesh Bhatia, Animesh Mishra, *Study and overview of the novel corona virus disease (COVID-19)*, Sensors International, Volume 1, 2020, 100037, ISSN 2666-3511, [https://doi.org/10.1016/j.sintl.2020.100037.\(https://www.sciencedirect.com/science/article/pii/S2666351120300371\)](https://doi.org/10.1016/j.sintl.2020.100037.(https://www.sciencedirect.com/science/article/pii/S2666351120300371))
- 4) Anestis Fotiadisa, Stathis Polyzos, Tzung-Cheng T.C. Huan, (2020). *The good, the bad and the ugly on COVID-19 tourism recovery*, Annals of Tourism Research, Volume 87, 2021, 103117, Retrieved from [https://doi.org/10.1016/j.annals.2020.103117.\(https://www.sciencedirect.com/science/article/pii/S0160738320302619\)](https://doi.org/10.1016/j.annals.2020.103117.(https://www.sciencedirect.com/science/article/pii/S0160738320302619))
- 5) Aquino, J. A., Banal, J. T., Pablo, F. B., David, J. D., & Sarmiento, P. (2021). *From leisure to isolation: a call to explore hotel sectors' role during COVID-19 pandemic*. Journal of public health (Oxford, England), 43(3), e553–e554. <https://doi.org/10.1093/pubmed/fdab172>
- 6) Barroso, A., & Sechopoulos, S. (2021, May 14). *College graduates in the year of COVID-19 experienced a drop in employment, labor force participation*. Pew Research Center. Retrieved from <https://www.pewresearch.org/facttank/2021/05/14/college-graduates-in-the-year-of-covid-19-experienced-a-drop-in-employment-labor-forceparticipation/>
- 7) Butcher, J. (2020). *The war on tourism*. Spiked Online. Retrieved May 5, 2020, from <https://www.spikedonline.com/2020/05/04/the-war-on-tourism/> [Google Scholar]
- 8) C. Michael Hall, Daniel Scott & Stefan Gössling (2020) *Pandemics, transformations and tourism: be careful what you wish for*, *Tourism Geographies*, 22:3, 577-598, DOI: 10.1080/14616688.2020.1759131
- 9) Cennimo DJ, Bergman SJ, Olsen KM. *Coronavirus disease 2019 (COVID-19). Medscape, in infectious diseases under drugs & diseases.2020*. Retrieved from: <https://emedicine.medscape.com/article/2500114-overview>
- 10) Dash, N. R., Guraya, S. Y., Al Bataineh, M. T., Abdalla, M. E., Yusoff, M. S. B., Al-Qahtani, M. F., et al. (2020). *Preferred teaching styles preferred by medical professors: an international multicenter study*. BMC Med. Educ. 20:480. doi: 10.1186/s12909-020-02358-0
- 11) Divya A. 2020. *Hospitality Sector Gears up for a New Post-Lockdown Normal*.<https://indianexpress.com/article/business/hospitality-sector-gears-up-for-a-new-post-lockdown-normal6482394/> [Google Scholar]
- 12) Ethridge, D. E. (2004, May 31). *Research Methodology in Applied Economics*, 2nd Edition. Wiley.Com. <https://www.wiley.com/en-us/Research+Methodology+in+Applied+Economics%2C+2nd+Edition-p-9780813829944>
- 13) Fana, M., Tolan, S., Torrejón Pérez, S., Urzi Brancati, M. C., & Fernández-Macías, E. (2020). *The COVID confinement measures and EU labour markets*. Luxembourg: Publications Office of the European Union.
- 14) Gamage, K, Wijesuriya, D, Ekanayake, S, et al. (2020) *Online delivery of teaching and laboratory practices: continuity of university programmes during COVID-19 Pandemic*. Education Sciences 10(10): 291. Google Scholar. Retrieved from <https://www.mdpi.com/2227-7102/10/10/291>
- 15) Hall, C. M. (2008). *Tourism planning: Policies, processes and relationships* (2nd ed.). Prentice-Hall. [Google Scholar]

Impact of Covid-19 on the Employment of BS Tourism Management Graduates

- 16) Hanson, Melanie. "College Enrollment & Student Demographic Statistics" *EducationData.org*, November 22, 2021, <https://educationdata.org/college-enrollment-statistics>
- 17) Higgins-Desbiolles, Freya. (2020). *The "war over tourism": challenges to sustainable tourism in the tourism academy after COVID-19*. *Journal of Sustainable Tourism*. 29. 1-19. 10.1080/09669582.2020.1803334, <https://www.researchgate.net/publication/343509010> The war over tourism challenges to sustainable tourism in the tourism academy after COVID-19
- 18) Huang, Z., & Saxena, S. (2021, March). *Building forward better: enhancing resilience of asia and pacific economies in a post-covid-19 world*. Google Scholar. Retrieved from <https://www.adb.org/sites/default/files/publication/692456/adbiwp1239.pdf>
- 19) IATA. (2020, June 9). *Industry Losses to Top \$84 Billion in 2020*. *Airlines Magazine*. <https://www.iata.org/en/pressroom/pr/2020-06-09-01/>
- 20) J.F.C.-G. (2021). *Work-Life balance crafting during COVID-19: Exploring strategies of telecommuting employees in the Philippines*. Taylor Francis Online. <https://www.tandfonline.com/doi/abs/10.1080/13668803.2021.1956880>
- 21) Jordan, A. H., Colledge, D., & Zitek, E. M. (2012). *Marital status bias in perceptions of employees*. *Basic and Applied Social Psychology*, 34, 474 – 481.
- 22) Korir, J. (2012). *Factors that influence career choice of hospitality students in Moi University, Kenya*. Google Scholar. <https://www.iiste.org/Journals/index.php/JEP/article/view/3426>
- 23) Lena, H., Mareike, B., Stefan, M., and Armin, S. (2020). *Problems and pitfalls of retrospective survey questions in COVID19 studies*. *Surv. Res. Methods* 14, 109–114. Google Scholar
- 24) Manzoor, F., Wei, L., Asif, M., Haq, M.Z., & Rehman, H.U. (2019). *The Contribution of Sustainable Tourism to Economic Growth and Employment in Pakistan*. *International Journal of Environmental Research and Public Health*, 16. <https://www.semanticscholar.org/paper/The-Contribution-of-Sustainable-Tourism-to-Economic-ManzoorWei/11ddb509a9f0da0a2a925e718de30259822987f4>
- 25) Masigan, Andrew J. (2019). *Numbers Don't Lie*. Retrieved from: <https://www.bworldonline.com/trends-in-the-food-industry/>
- 26) Mehrabian, Bahadori, & Babaei. (2013). *Prioritization of Factors Influencing Job Motivation in Employees of a Military Center Using Analytical Hierarchy Process (AHP)*. ResearchGate. Retrieved from <https://www.researchgate.net/publication/287713285> Prioritization factors influencing job motivation in employees of a military center using Analysis Hierarchy Process AHP
- 27) Pouliakas, K., & Branka, J. (2020). *EU jobs at highest risk of COVID-19 social distancing: is the pandemic exacerbating the labour market divide? Cedefop—Working Paper Series*.
- 28) Provasnik, S.J., & Planty, M.G. (2008). *Community Colleges: Special Supplement to The Condition of Education 2008*.
- 29) Statistical Analysis Report. NCEs 2008-033. National Center for Education Statistics.
- 30) R. Blokker, J. Akkermans, M. Tims, P. Jansen, S. Khapova (2019) *Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals' employability*. *Journal of Vocational Behavior*, 112 (2019), pp. 172-184, 10.1016/j.jvb.2019.02.013
- 31) Reinders, H. J., Schoenmaker, D., & Van Dijk, M. A. (2020). *Is COVID-19 a Threat to Financial Stability in Europe?* CEPR Discussion Paper No. DP14922. <https://ssrn.com/abstract=3638026>. <https://doi.org/10.2139/ssrn.3633932>
- 32) Renwick, P. A., & Tosi, H. (1978). *The effects of sex, marital status, and educational background on selection decisions*. *Academy of Management Journal*, 21, 93–103. doi:10.2307/255665
- 33) Seeram, E. (2019, November 1). *An Overview of Correlational Research*. Google Scholar. <http://www.radiologicstechnology.org/content/91/2/176.extract>
- 34) Song, Haiyan & Li, Gang. (2008). *Tourism demand modelling and forecasting - A review of Recent research*. *Tourism Management*. 29. 203-220. 10.1016/j.tourman.2007.07.016.
- 35) S. Zenker, F. Kock (2020) *The coronavirus pandemic—A critical discussion of a tourism research agenda* *Tourism Management*, 81 (2020), p. 104164, from <https://www.sciencedirect.com/science/article/pii/S0261517720300881>
- 36) S. Baert, L. Lippens, E. Moens, P. Sterkens, J. Weytjens, (2020, April 1). *How Do We Think the COVID-19 Crisis Will Affect Our Careers (If Any Remain)?* Google Scholar. Retrieved from <https://ftp.iza.org/dp13164.pdf>
- 36) S. X. Zhang, Y. Wang, A.A. Jahanshahi, J. Li, V.G.H. Schmitt *Early evidence and predictors of mental distress of adults one month in the COVID-19 epidemic in Brazil* *J. Psychosom Res.*, 142 (2021), Article 110366. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0924977X21016357#bib0188>

Impact of Covid-19 on the Employment of BS Tourism Management Graduates

- 37) T. Pacheco, S. Coulombe, C. Khalil, S. Meunier, M. Doucerain, É. Auger, E. Cox. (2020, December 8). Job security and the promotion of workers' wellbeing in the midst of the COVID-19 pandemic: A study with Canadian workers one to two weeks after the initiation of social distancing measures. Google Scholar. Retrieved from <https://internationaljournalofwellbeing.org/index.php/ijow/article/view/1321>
- 38) T. Quintana, T. HaiNguyen, Y.Cabrera, J. Díaz. (2021, April 1). Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience. Google Scholar. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0278431921000116>



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Stem Cell Mediated Bioroot Regeneration: It's Your Future whether you Know It or Not



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ABSTRACT: Early Tooth loss in humans caused by caries and dental trauma has a serious impact on their oral health-related quality of life. Different approaches such as removable dentures, fixed prosthesis, tooth autotransplantation, allotransplantation & dental implants have been in practice to restore the lost tooth structure, but none of them is completely successful as they present with problems with biocompatibility, inflammatory changes, and failures thus making the problem further more complex. Hence, the development of new methods of tooth replacement has become important. Stem cell-based tissue engineering which can recapitulate the in vivo environment has shown that dental, non-dental, embryonic, and adult stem cells can contribute to teeth formation under favorable circumstances. The concept of 'Bioroot' with supporting evidence that stem cell populations may be present in human teeth provides the opportunity to consider biological tooth replacement. This article enlightens the concept of stem cell-mediated bio root regeneration and their literature evidence and the significance of bio root formation as a potent tooth replacement tool in the future.

KEYWORDS: bio root, biofactors – cell sheets, tooth regeneration, scaffold, stem cells

INTRODUCTION

Tooth loss occurs as a result of various pathological conditions, such as periodontitis, dental caries, trauma, congenital malformations, or age-related changes. In humans, tooth loss can lead to physical and mental complaints that reduce the quality of life. It is associated with global health and economic burden. Removable dentures, fixed partial dentures and metal implants are mainly used to repair these defects; however, they have limitations in terms of provide anatomical structure, tissue regeneration properties etc [1]. Therefore many researchers are working towards the concept of regeneration and exploring new therapeutic strategies for tooth loss.

The tooth root is a multi-structure organ composed of soft tissues of dental pulp, periodontium, and mineralized tissues (dentin and cementum). These mineralized tissues are an integral part of the tooth and play critical roles in maintaining tooth functions and supporting a natural or artificial crown [2,3]. Recent advancements in dental stem cell biotechnology and cell-based tooth regeneration have made it possible to regenerate a living tooth. However, it has been proven impossible to restore an entire tooth, including the crown and root, because of the human tooth structure and the inability of tissue engineering to induce tooth eruption. Alternatively, regenerating the root may be easier than whole tooth regeneration shortly. From the standpoints of anatomy and clinical practice, the tooth root plays a significant role in maintaining tooth function, because it provides a stable anchor for a natural or post-supported crown. So based on the above idea, the concept of Bio-root regeneration through stem cells was proposed in 2006 [1].

The objective of bio-root regeneration is to implant pre-shaped root-like scaffolds combined with stem cells into the alveolar bone to form a functional bio-root, which is capable of supporting post-crown prosthesis (Figure 1). The tissue product that is regenerated should present as a root-like structure with biomechanical properties and elements similar to the natural teeth with histological reproducing a periodontal ligament (PDL) like tissue and a dentin-like matrix structure [4].

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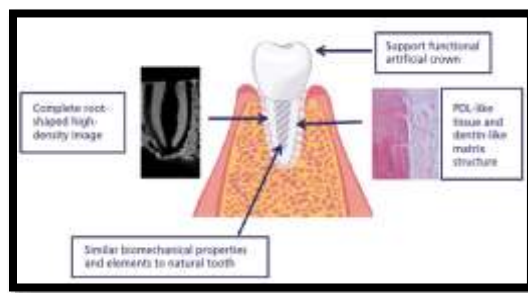


Figure 1: The concepts of functional bio-root regeneration and restoration of tooth loss (Adapted from the Textbook and color atlas of traumatic injuries to the teeth [4])

HISTORICAL PERSPECTIVE OF BIOROOT REGENERATION

Earlier non-biological approaches were used for restoring tooth loss. In 200 AD; an iron stud was used to replace the tooth. In the Mayan Civilization nacre, tooth implants were discovered [5]. Materials such as gold, sapphire, and stainless steel were all used as teeth replacements throughout the generations, Branmark made a breakthrough by introducing one of the most successful and widely accepted titanium implantation systems in 1980 [6]. However, these devices might induce foreign body reactions and run the risk of rejection by the immune system [7]. Therefore, biocompatibility is the need of the hour for the next generation of tooth replacements.

Advances in molecular biology and stem cell technology have resulted in the emergence of regeneration as a new treatment modality in medical science. i.e. "Regenerative medicine". A quarter century after its inception, several treatment procedures which earlier focused on replacement with artificial structures have been substituted with regenerative procedures [8].

As regenerative medicine and tissue engineering technology has developed, researchers are exploring the potential for regenerating living functional teeth. Evidence, that stem cell populations are present in human teeth, provides the opportunity to consider 'new for old' biological tooth replacement [9].

To accomplish tooth regeneration, the natural process of tooth embryonic development can be replicated in vitro or in vivo as an attempt to recreate the nascent growth of tooth germs, and dental stem/progenitor cells. Slavkin et al suggested that cultures of dental pulp cells derived from an early stage of developing dental root and pulp tissue can differentiate into odontoblast-like cells with the capacity to form mineralized nodules in vitro [10]. In 2006, Sonoyama et al showed that stem cell-mediated bio-root regenerated in miniature pig models, similar to that of human teeth in anatomy, development, physiology, pathophysiology, and disease occurrence [11].

MAJOR DOMAINS OF STEM CELL-MEDIATED BIOROOT REGENERATION

There are three major domains of stem cell-mediated bio root regeneration viz stem cells, scaffolds & biofactors - cell sheets.

I. Stem cells

Duality et al in 2006 defined stem cells as "Quiescent cell populations present in low numbers in normal tissue, which exhibit the distinct characteristic of asymmetric cell division, resulting in the formation of two distinct daughter cells, a new progenitor cell and another daughter cell capable of forming a differentiated tissue"[12]. The term stem cell was proposed for scientific use by Russian histologist Alexander Maksimov in 1908 [13].

Two types of stem cells are used in stem cell-mediated bio root regeneration i.e Dental stem cells & Non dental stem cells [4]. They are:

A. Dental stem cells : These comprise of dental pulp stem cells, stem cells from apical papilla, periodontal ligament stem cells & periapical follicle stem cells

B. Non-dental stem cells

A. Dental stem cells:

- 1) Mesenchymal stem cells (MSCs) are multipotent cells that can be differentiated into different types of cells such as osteoblasts, chondrocytes, myocytes, and adipocytes. Since they were first isolated from bone marrow, it was thought that MSCs were located in almost all tissues, perhaps even in neural tissues. Thus, it was speculated that MSCs may be found in adult dental tissues, which also contain a population of multipotential stem cells [14].
- 2) Dental pulp stem cells

The dental pulp contains a population of stem cells which are known as dental pulp stem cells (DPSCs), characterized by the presence of a well-defined layer of aligned odontoblast-like cells expressing the dentin-specific protein DSPP. They are also

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referred to as odontoblastoid cells because these cells appear to synthesize and secrete dentin matrix like the odontoblast cells that they replace [15].

According to a study conclusions given by Gronthos et al, Miura et al in 2003 [4], Dental pulp stem cells can generate dentin/pulp-like structures when mixed with hydroxyapatite/tricalcium phosphate (HA/TCP) ceramic powder and transplanted into the dorsal surface of immunocompromised mice. It has been postulated that perivascular mesenchymal cells surrounding the dental pulp are capable of differentiating into macrophages, fibroblasts, odontoblasts, and osteoblasts following injury [16].

B) Stem cells from apical papilla (SCAP)

SCAP cells are found in the apical papilla located at the apices of developing teeth. It is mainly seen at the junction of the apical papilla and the dental pulp [16].

Because of the apical location, this tissue receives its collateral circulation from the periapical tissue vasculature, which enables it to survive during the process of pulp necrosis. Hence even after endodontic disinfection, SCAP can generate primary odontoblasts, which complete root formation under the influence of the surviving epithelial root sheath of Hertwig [17].

3) Periodontal ligament cells

Human periodontal ligament stem cells have been successfully isolated from the root of extracted teeth. This was first isolated and characterized by Seo et al in 2004. The potential of PDLSCs to develop into other cell lineages and obtain periodontal ligament-like characteristics has been established in vitro as well as in vivo [18]. They possess the ability to differentiate into cementoblast-like cells, adipocytes, and collagen-framing cells along with the capacity to generate a cementum/PDL-like structure [19].

4) Periapical follicle stem cell (dental follicle stem cell)

The dental follicle is a multipotent tissue as it can generate cementum, bone, and pdl from the ectomesenchyme fibrous tissue. These cells were first isolated from the follicle of impacted third molars. In 2002, Handa K isolated progenitor cells from bovine dental follicles & showed that these cells can differentiate into mesenchymal-derived cells like cementoblasts, adipocytes, and chondrocytes [17, 18].

B. Non-dental stem cells:

Non-dental stem cells such as embryonic stem cells, neural stem cells, and adult bone marrow-derived cells have the potential of expressing odontogenic genes. One of the studies has shown that recombination between non-dental stem cell aggregations and embryonic oral epithelium transplanted into adult mice renal capsules resulted in the development of tooth structures and associated bone [20].

II. Scaffolds

Scaffolds can be defined as biocompatible structures that support cell growth and provide a suitable environment for tissue formation. The scaffold is also an essential element in tissue engineering. It is still unclear exactly what shape and size a bioengineered tooth root should be, to produce the best retention and function [21]. This is important since bioengineered organ/tissue shapes and sizes are routinely controlled by scaffold fabrication. Therefore, exploring and optimizing the design of scaffolds has great significance for further research and clinical utilization of bio-root regeneration [22].

A. Spherical polyglycolide/poly-L-lactide (PGA-PLLA) scaffolds:

PGA-PLLA scaffolds are frequently used and have good biocompatibility and cell-retaining behavior. PGA-PLLA has been used as an artificial scaffold for cell transplantation and degrades as the cells excrete extracellular matrix [22]. They were used as a scaffold to demonstrate that dentin-like tissue could be formed and pulp-like tissue could be regenerated after 3–4 months. PGA-PLLA in a 50:50 mixture has a degradation time of about 8 weeks [23].

B. Hydroxyapatite/TriCalcium Phosphate (ha/TCP) scaffolds:

Researchers have shown that human bones are generated after xenogeneic transplantation of bone marrow stromal cells with HA/TCP as a carrier vehicle. In one of the researches, consistent bone formation by human MSCs was achieved within HA/TCP ceramics in the form of blocks, powder, and HA/TCP powder type I bovine fibrillar collagen strips; and bone was maintained for at least 19 weeks [24].

C. Treated dentin matrix (TDM) scaffolds:

Treated dentin matrix scaffold, when seeded with dental pulp stem cells, and transplanted to the alveolar bone of swine, has shown stable histological regeneration and also improved masticatory function. Krebsbach et al conducted studies on evaluating bone formation in vivo by comparison of osteogenesis in transplanted mouse and human marrow stromal fibroblasts validated the use of TDM scaffold 9.4mm in length and 4.9/3.4mm in diameter for effective biological tooth regeneration [25].

III. Biofactors –cell sheets:

Cell sheet engineering has been used as an alternative approach to tissue engineering in periodontal tissues. Biofactors such as continuous cell sheets can enable the preservation of cellular junctions, endogenous extracellular matrix (ECM) and mimic cellular microenvironments in terms of various mechanical, chemical and biological properties [26]. At present, several improvements

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have been made to harvest the living cell sheet more easily. In some studies, dexamethasone and ascorbic acid phosphate (vitamin C) were used to create cell sheets to enhance bone formation [27].

REGENERATION METHOD OF STEM CELL MEDIATED BIOROOT

In 1949, the Hormel Institute of the USA developed a Minnesota miniature pig and used it as a large animal model in medical studies for scientific, economic, and ethical reasons [28]. The oral maxillofacial region of miniature pigs is similar to that of humans in development, anatomy, physiology, pathophysiology, and disease occurrence. This miniature pig had both deciduous & permanent dentition, thus helping to evaluate the initiation of tooth formation. Various studies were done in pig models which elaborated that stem cells isolated from cultures of pigs are similar to human stem cells [29].

Method of stem cell-mediated bio root regeneration [4] included the following steps as illustrated in figure 2:

- I. Isolation of autologous or allogenic stem cells in culture for growth.
- II. Scaffold fabrication which provided the suitable root shape and acted as a membrane containing an inner post channel space to allow the subsequent installation of a porcelain crown.
- III. Stem cells seeded on the scaffold and harvested stem cell sheet.
- IV. Preparation of the bio-root complex before implantation.
- V. Preparation of implantation sockets.
- VI. Implantation of bio root complex.
- VII. Regeneration of bio root.

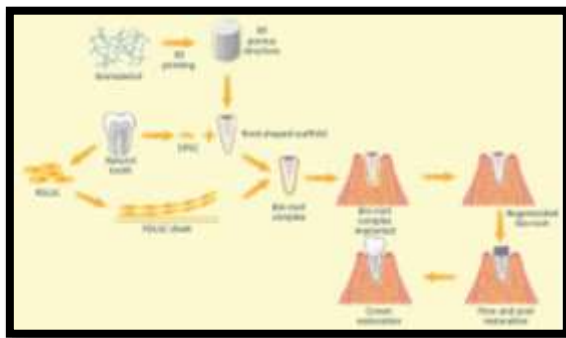


Figure 2: Diagram showing the use of bio-roots in the treatment of tooth loss. Dpsc (dental pulp stem cells); pdpsc (periodontal ligament stem cells). (Adapted from Textbook and color atlas of traumatic injuries to the teeth [4])

THE CLINICAL CRITERIA FOR THE SUCCESS OF STEM CELL-MEDIATED BIO ROOT REGENERATION ARE

- I. To have a root-like structure with computed tomography (CT) examination showing a complete root-shaped high-density image.
- II. To have similar biomechanical properties and elements to natural teeth.
- III. To have histology showing periodontal ligaments (PDL) like tissue and a dentin-like matrix structure [30, 31].

PROSPECTS OF STEM CELL-MEDIATED BIOROOT REGENERATION

- I. The biomechanical properties of the bio-root such as compressive strength, elasticity modulus, and torsional force are very similar to those of the natural tooth root.
- II. Bioengineered dentin results in inducing cementogenesis and PDL formation.
- III. Element analysis has shown that the bio-root has similar element content (mainly calcium, phosphorus, and magnesium) to that of natural teeth, indicating that biological changes do occur during the bio-root regeneration.
- IV. Stem cell-mediated root regeneration provides opportunities to regenerate bio-root and its associated periodontal tissues, which are necessary to maintain the physiologic functions of teeth [4, 32].

LIMITATIONS OF STEM CELL-MEDIATED BIOROOT REGENERATION:

The sources of dental stem cells are potentially limited and their activity is hard to maintain after implantation. Also, the lack of an effective biological scaffold fabrication is another limiting factor. The procedure lacks precise control of directional differentiation of dental stem cells as well [32].

CONCLUSION:

Findings of in vivo studies done on animal models have shown that the stem cell-mediated bio-root tooth regeneration approach can functionally generate tooth tissue and also has benefits over conventional dental

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implants. Nevertheless, results of the ongoing preclinical and clinical trials will be required to assess the therapeutic potential of bioroot in clinical applications for tooth regeneration.

REFERENCES

- 1) Gao, Z.H., Hu, L., Liu, G.L., Wei, F.L., Liu, Y., Liu, Z.H., Fan, Z.P., Zhang, C.M., Wang, J.S. and Wang, S.L., 2016. Bio-root and implant-based restoration as a tooth replacement alternative. *Journal of Dental Research*, 95(6), pp.642-649.
- 2) Balic, A., 2018. Biology explaining tooth repair and regeneration: a mini-review. *Gerontology*, 64(4), pp.382-388.
- 3) Eckert, S.E., Choi, Y.G., Sánchez, A.R. and Koka, S., 2005. Comparison of dental implant systems: quality of clinical evidence and prediction of 5-year survival. *International Journal of Oral & Maxillofacial Implants*, 20(3).
- 4) Andreasen, J.O., Andreasen, F.M. and Andersson, L. eds., 2018. Textbook and color atlas of traumatic injuries to the teeth. John Wiley & Sons.
- 5) Crubzy, E., Murail, P., Girard, L. and Bernadou, J.P., 1998. False teeth of the Roman world. *Nature*, 391(6662), pp.29-29.
- 6) Westbroek, P. and Marin, F., 1998. A marriage of bone and nacre. *Nature*, 392(6679), pp.861-862.
- 7) Zander, H.A., 1939. The reaction of the pulp to calcium hydroxide. *Journal of Dental Research*, 18(4), pp.373-379.
- 8) Bakhtiar, H., Mazidi S, A., Mohammadi Asl, S., Ellini, M.R., Moshiri, A., Nekoofar, M.H. and Dummer, P.M.H., 2018. The role of stem cell therapy in the regeneration of dentine-pulp complex: a systematic review. *Progress in biomaterials*, 7(4), pp.249-268.
- 9) Tummers, M. and Thesleff, I., 2003. Root or crown: a developmental choice orchestrated by the differential regulation of the epithelial stem cell niche in the tooth of two rodent species.
- 10) Chai, Y. and Slavkin, H.C., 2003. Prospects for tooth regeneration in the 21st century: a perspective. *Microscopy research and technique*, 60(5), pp.469-47
- 11) Gronthos, S., Mankani, M., Brahim, J., Robey, P.G. and Shi, S., 2000. Postnatal human dental pulp stem cells (DPSCs) in vitro and in vivo. *Proceedings of the National Academy of Sciences*, 97(25), pp.13625-13630.
- 12) Anil, D., Viresh, C. and Shalya, R., 2011. Challenges of bioengineering and endodontics. *Journal of Developmental Biology and Tissue Engineering*, 3(7), pp.80-84.
- 13) Kumar, R., Sharma, A., Pattnaik, A.K. and Varadwaj, P.K., 2010. Stem cells: An overview with respect to cardiovascular and renal disease. *Journal of natural science, biology, and medicine*, 1(1), p.43.
- 14) Gronthos, S., Brahim, J., Li, W., Fisher, L.W., Cherman, N., Boyde, A., DenBesten, P., Robey, P.G. and Shi, S., 2002. Stem cell properties of human dental pulp stem cells. *Journal of dental research*, 81(8), pp.531-535.
- 15) Gronthos, S., Mankani, M., Brahim, J., Robey, P.G. and Shi, S., 2000. Postnatal human dental pulp stem cells (DPSCs) in vitro and in vivo. *Proceedings of the National Academy of Sciences*, 97(25), pp.13625-13630.
- 16) Seo, B.M., Miura, M., Gronthos, S., Bartold, P.M., Batouli, S., Brahim, J., Young, M., Robey, P.G., Wang, C.Y. and Shi, S., 2004. Investigation of multipotent postnatal stem cells from human periodontal ligament. *The Lancet*, 364(9429), pp.149-155.
- 17) Duailibi MT DS, Young CS, Bartlett JD, Vacanti JP, Yelick PC. Bioengineered teeth from cultured rat tooth bud cells. *J Dent Res* 2004;83:523–8.
- 18) Miura, M., Gronthos, S., Zhao, M., Lu, B., Fisher, L.W., Robey, P.G. and Shi, S., 2003. SHED: stem cells from human exfoliated deciduous teeth. *Proceedings of the National Academy of Sciences*, 100(10), pp.5807-5812.
- 19) Senzaki, H., 1980. A histological study of reparative dentinogenesis in the rat incisor after colchicine administration. *Archives of Oral Biology*, 25(11-12), pp.737-743.
- 20) Ohazama, A., Modino, S.A.C., Miletich, I. and Sharpe, P.T., 2004. Stem-cell-based tissue engineering of murine teeth. *Journal of dental research*, 83(7), pp.518-522.
- 21) Saber, S.E.D.M., 2009. Tissue engineering in endodontics. *Journal of oral Science*, 51(4), pp.495-507.
- 22) Wang, S., Liu, Y., Fang, D. and Shi, S., 2007. The miniature pig: a useful large animal model for dental and orofacial research. *Oral diseases*, 13(6), pp.530-537.
- 23) Chavez, M.G., Yu, W., Biehs, B., Harada, H., Snead, M.L., Lee, J.S., Desai, T.A. and Klein, O.D., 2013. Characterization of dental epithelial stem cells from the mouse incisor with two-dimensional and three-dimensional platforms. *Tissue Engineering Part C: Methods*, 19(1), pp.15-24.
- 24) Krebsbach, P.H., Kuznetsov, S.A., Satomura, K., Emmons, R.V., Rowe, D.W. and Robey, P.G., 1997. Bone formation in vivo: comparison of osteogenesis by transplanted mouse and human marrow stromal fibroblasts. *Transplantation*, 63(8), pp.1059-1069.

Stem Cell Mediated Bioroot Regeneration: It's Your Future whether you Know It or Not

- 25) Luo, X., Yang, B., Sheng, L., Chen, J., Li, H., Xie, L., Chen, G., Yu, M., Guo, W. and Tian, W., 2015. CAD based design sensitivity analysis and shape optimization of scaffolds for bio-root regeneration in swine. *Biomaterials*, 57, pp.59-72.
- 26) Gilbert, J.C., Takada, T., Stein, J.E., Langer, R.O.B.E.R.T. and Vacanti, J.P., 1993. Cell transplantation of genetically altered cells on biodegradable polymer scaffolds in syngeneic rats. *Transplantation*, 56(2), pp.423-427.
- 27) Wei, F., Qu, C., Song, T., Ding, G., Fan, Z., Liu, D., Liu, Y., Zhang, C., Shi, S. and Wang, S., 2012. Vitamin C treatment promotes mesenchymal stem cell sheet formation and tissue regeneration by elevating telomerase activity. *Journal of cellular physiology*, 227(9), pp.3216-3224.
- 28) Wang, S., Liu, Y., Fang, D. and Shi, S., 2007. The miniature pig: a useful large animal model for dental and orofacial research. *Oral diseases*, 13(6), pp.530-537.
- 29) Gronthos, S., Zannettino, A.C., Hay, S.J., Shi, S., Graves, S.E., Kortessidis, A. and Simmons, P.J., 2003. Molecular and cellular characterization of highly purified stromal stem cells derived from human bone marrow. *Journal of cell science*, 116(9), pp.1827-1835.
- 30) Wei, F., Song, T., Ding, G., Xu, J., Liu, Y., Liu, D., Fan, Z., Zhang, C., Shi, S. and Wang, S., 2013. Functional tooth restoration by allogeneic mesenchymal stem cell-based bio-root regeneration in swine. *Stem cells and development*, 22(12), pp.1752-1762.
- 31) Gao, Z.H., Hu, L., Liu, G.L., Wei, F.L., Liu, Y., Liu, Z.H., Fan, Z.P., Zhang, C.M., Wang, J.S. and Wang, S.L., 2016. Bio-root and implant-based restoration as a tooth replacement alternative. *Journal of Dental Research*, 95(6), pp.642-649.
- 32) Shi, S., Bartold, P.M., Miura, M., Seo, B.M., Robey, P.G. and Gronthos, S., 2005. The efficacy of mesenchymal stem cells to regenerate and repair dental structures. *Orthodontics & craniofacial research*, 8(3), pp.191-199.



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GIS-Based Prediction of Dynamic Land Use Change and its Structure in Bengbu City



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ABSTRACT: In this paper, Bengbu City, Anhui Province, China, was selected as the study area, based on three phases of multispectral image data in 2000, 2010 2020, to reflect the dynamic land use change characteristics of Bengbu City in the last decade in detail, used ArcGIS software for data processing, through the transfer matrix, land use dynamic attitude, land use change amplitude, respectively, the land use characteristics in the study area and its overall change trend were quantitatively assessed, and the future land use evolution of Bengbu City was predicted by simulation using Markov model. The results show that the overall change of land use structure in Bengbu City during the 20 years is mainly the decrease of cultivated land and the increase of man-made surface, and although the transfer out of cultivated land is greater than the transfer in, cultivated land is still the most dominant land use type in Bengbu City during the study period, accounting for more than 70% of the total land area, and it is predicted that the overall change of land use in Bengbu City in the future is still mainly the decrease of cultivated land, while the area of man-made surface continues to show an increasing trend year by year. the trend of the increasing year by year.

KEYWORDS: remote sensing; dynamic land use change; Markov model; Bengbu City

1. INTRODUCTION

As the carrier of all human activities, the land is closely related to human production and life, and land resource allocation, as the mainstream resource allocation method in today's society, becomes an urgent problem to be solved according to the regional geographical location and economic level for reasonable land resource allocation. Land use refers to the land resource utilization activities carried out by human beings to obtain the required products or services, which is the way of using the natural properties of land and the utilization status of human beings, and contains the purpose and intention of human beings to use land, and land use can be used as a coupling of land use demand and land supply type^[1]. The natural resource conditions of the region as well as the regional economic development status also depend on the land use structure and status of the region to a certain extent. Only by fully understanding and studying the land use status and its spatial and temporal changes in the region can we reasonably plan the layout and formulate the land policy for regional development planning. As a once important industrial city in Anhui Province and one of the important transportation hubs in China, Bengbu City is currently experiencing a slowdown in economic growth and an increasingly prominent contradiction between land supply and demand. Therefore, it is of great practical significance to study the land use status and its structure in Bengbu city to promote regional economic development, reasonably plan the city's land use structure and make full use of land resources.

2. DATA SOURCES AND RESEARCH METHODOLOGY

2.1 Overview of the study area

Bengbu is located in the northeastern part of Anhui Province, in the middle reaches of the Huai River, with latitude 32°43' to 33°30' north and longitude 116°45' to 118°04 4' east. The city has three administrative counties, Wuhe, Guzhen, and Huaiyuan counties, four administrative districts, namely Longzihu, Bingshan, Yuyi, and Huaishang, and two functional districts, Bengbu High-Tech Industrial Development Zone and Bengbu Economic Development Zone, with a total area of 5,951km². As of the end of 2020, the resident population was 3,296,400, accounting for 5.4% of the people of Anhui Province, with the urban population accounting

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for 55.08%, rural population 44.92%; Bengbu city's GDP in 2020 is 208.27 billion yuan, per capita GDP 63,209 yuan, slightly lower than Anhui Province per capita GDP 63,209 yuan, the primary, secondary and tertiary industries account for 12.2%, 40.1%, and 47.7% respectively, the leading industries are secondary and tertiary.

2.2 Data sources and pre-processing

The data used in this paper are surface coverage data provided by the global geographic information public product GlobeLand30, which is derived from TM5, ETM+, OLI multispectral imagery from the US Land Resources Satellite (Landsat), and multispectral imagery from the Chinese Environmental Disaster Reduction Satellite (HJ-1)^[2]. The data remote sensing image data including three phases of 2000, 2010, and 2020 were pre-processed by ArcGIS tools for mask extraction, raster to the surface, fusion, intersection, and pivot table in Excel.

2.3 Research methodology

2.3.1 Dynamic land use attitudes

The amount of change in the use pattern of a land use type over a certain period is known as the dynamic attitude of that land use type, which quantitatively describes the rate of land change over some time^[3]. It quantifies the rate of land change over a while. The single land use dynamic attitude is used to characterize the dynamic change of a land use type in the study area during the study period, and this paper uses the single land use dynamic attitude to study the dynamic change of each land use type in Bengbu

City between 2000 and 2020, and its expression is:

$$K = \frac{U_b - U_a}{U_a} \times \frac{1}{T} \times 100\%$$

where K denotes the dynamic attitude of a single land use type in the selected study period, U_a and U_b are the numbers of a land use type at the beginning and end of the study, respectively, and T denotes the time interval between the two selected study periods, and if the unit is set to years, K denotes the annual rate of change of that land use type.

2.3.2 Magnitude of change

The magnitude of change is the amount of change in a land use type as a percentage of the total land area at the beginning of the study, and it characterizes the value of the change in a land use type relative to the land use pattern at the beginning of the study and is expressed as:

$$U = \frac{U_b - U_a}{S} \times 100\%$$

where U denotes the magnitude of change for a land use type, and U_a , U_b and S are the area of a land use type at the beginning of the study, the area of a land use type at the end of the study, and the total area of the study area, respectively.

2.3.3 Markov model (mathematics)

Land use change is an evolutionary process of a complex system, and it is difficult to make predictions with complex formulas^[4]. However, Markov prediction models can make scientific and reasonable predictions on the land use structure of a region in the future based on the current state and changes in the dynamic system, to promote rational land planning and make full use of land resources. Markov model is a statistical model, in which the concept of the Markov process refers to a special stochastic process with "no posteriority (i.e. Markovianity)". The so-called "posteriority-free" means that the state at the moment T+1 of a stochastic process is only related to the state at the moment T, but not to the state before the moment T. That is, the state transfer probability is only related to the state at the time of transfer, the number of transfer steps, and the state after the transfer, but not to the moment before the transfer^[5]. Under certain conditions, the dynamic evolution of land use has the nature of the Markov process, while the interconversion of land use types is difficult to describe by an accurate function, it is possible to apply the Markov prediction model to dynamically simulate the future land use structure in the study area.

The key to applying the Markov model is the identification of transfer probabilities, and the transfer matrix can effectively account for the interconversion of different land use types, with the transfer matrix expression being.

$$P_{ij} = \begin{bmatrix} P_{11} & P_{12} & \cdots & P_{1n} \\ P_{21} & P_{22} & \cdots & P_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ P_{n1} & P_{n2} & \cdots & P_{nn} \end{bmatrix}$$

where P_{ij} is the transfer probability of conversion from land use type i to land use type j. The elements of the matrix should satisfy the condition

$$\sum_{j=1}^n P_{ij} = 1 (i, j = 1, 2, 3, \dots, n); 0 \leq P_{ij} \leq 1$$

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Let the probability of the initial state $n = 0$ in the land use system be.

$$A^{(0)} = [A_1^{(0)} \quad A_2^{(0)} \quad A_3^{(0)} \quad \dots \quad A_n^{(0)}]$$

Then, according to the Markov prediction principle, the probability of land use after n transfers is

$$A^{(n)} = [A_1^{(n)} \quad A_2^{(n)} \quad A_3^{(n)} \quad \dots \quad A_n^{(n)}] = A^{(0)} \cdot P^{(n)}$$

where $P^{(n)}$ denotes the transfer matrix after n steps of transfer. Since the state probability at any moment in the land use system prediction system is determined only by the initial state probability and the transfer probability. The transfer step in the prediction model is the time between two land use periods when the transfer matrix is established, and to ensure the accuracy of the prediction model and the availability of data, the initial year is chosen to be 2020 and the transfer step is chosen to be 10, then only the land use after 2020 can be predicted $10n$ ($n = 1, 2, 3, \dots, n$) year land use state.

3. RESEARCH FINDINGS AND ANALYSIS

3.1 Basic land use characteristics

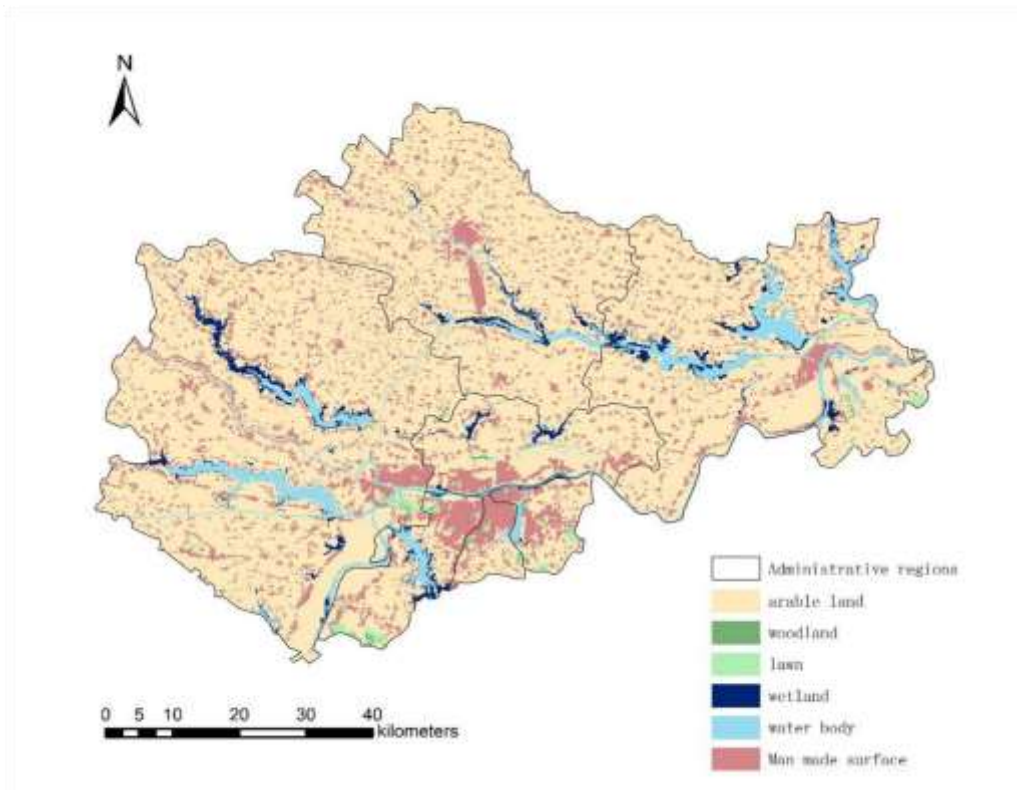


Figure 2-1 Distribution of land use types in Bengbu City in 2020

land category	2000		2020	
	Area/hm ²	Area share	Area/hm ²	Area share
arable land	467765.73	78.63%	446883.39	75.12%
woodland	838.44	0.14%	1496.07	0.25%
lawn	7064.46	1.19%	6866.28	1.15%
wetland	4301.91	0.72%	14384.79	2.42%
water body	49315.23	8.29%	35383.86	5.95%
Man-made surface	65576.61	11.02%	89847.99	15.10%

Table 2-1 Bengbu Land Use Distribution Table

GIS-Based Prediction of Dynamic Land Use Change and its Structure in Bengbu City

According to Figure 2-1 and Table 2-1, because of the remarkable monsoon and mild climate in Bengbu city, the soil is mainly loamy and sandy soil, which is suitable for all kinds of crops, so the land use type in the whole territory of Bengbu city is mainly arable land, the arable land area in Bengbu city in 2000 is 467,765.73 hm², accounting for 78.63% of the total area, and the arable land area in Bengbu city in 2020 is 446,883.39 hm², accounting for 75.12% of the total area, the arable land area is more than 3/4 of the total land area. Bengbu city is located in the temperate semi-humid monsoon climate zone, the average annual precipitation is abundant, and the area of water in the territory is more widely distributed, so in the distribution of land types in 2000 wetlands and water bodies accounted for 0.72% and 8.29% of the total land area, a total of 9.01%, in 2020 wetlands and water bodies respectively accounted for 2.42% and 5.95%, for a total of 8.37%. As Bengbu City vigorously promotes the construction of the central city during the 13th Five-Year Plan period, focusing on promoting the synergistic development of new urban areas and old urban areas. To create a modern city with a beautiful environment and comfortable living features, Bengbu City vigorously promotes and improves infrastructure construction, including road construction, drainage facilities, and sewage treatment facilities, as well as the construction of supporting service facilities, further optimizes the layout of administrative areas, to accommodate the continuous influx of urban population, to adjust the administrative planning and expand the city limits promptly to face the steadily increasing level of the urban rate, Due to the above reasons, the man-made surface^[6] (including surfaces formed by artificial construction activities, including towns and other types of residential land, industrial and mining, transportation facilities, etc.) also occupy a larger share in the land use structure of Bengbu City, with the area of man-made surfaces accounting for 11.02% and 15.10% of the total land area in 2000 and 2020, respectively.

3.2 Overall land use change characteristics

2000 land category	Land category 2020							2000
	arable land	woodland	lawn	wetland	water body	Manmade surface		
arable land	418321	384.12	3412.89	3471.84	2570.22	39605.67	467765.7	
woodland	83.34	531.27	190.08	7.47	7.11	19.17	838.44	
lawn	895.23	153.54	2049.03	1471.32	554.94	1940.4	7064.46	
wetland	747.27	178.47	237.78	2185.38	868.14	84.87	4301.91	
water body	9541.44	165.33	546.84	7089.57	31313.16	658.89	49315.23	
Man-made surface	17295.12	83.34	429.66	159.21	70.29	47538.99	65576.61	
2020	446883.4	1496.07	6866.28	14384.79	35383.86	89847.99		

Note: Where all land use change areas are in hm².

Table 2-2 2000-2020 Bengbu City Land Use Transfer Matrix

According to the results in the land use transfer matrix in Table 2-2, Bengbu City mainly shows an increase in man-made surfaces and wetlands and a decrease in arable land and water terraces during the study period. Among them, the transfer out of cultivated land amounted to 49444.74 hm², with a net decrease of 20882.34 hm², of which the main transfer out was man-made surface, totaling 39605.67 hm², accounting for 80.1% of the total transferred area, followed by grassland and wetlands, accounting for 6.9% and 7.02% of the total transferred area, respectively, with a change of -3.51 (the change is less than zero, indicating that cultivated land is in a negative state, i.e., the amount of transfer out is greater than the amount of transfer in). The surface transfer of man-made land amounted to 42309 hm² with a net increase of 24271.38 hm², of which the main transfer came mainly from arable land with a total of 17295.12 hm², accounting for 93.61% of the total transfer. The decrease in arable land as well as the increase in the man-made land surface is mainly due to Bengbu City's policy of optimizing the structure and layout of urban and rural land and steadily promoting urbanization, increasing urban construction land and a decrease in rural arable land to meet the needs of urbanization in Bengbu City. At the same time, Bengbu City actively promotes the construction of transportation, water conservancy, and basic service facilities in its land planning to strengthen cross-regional exchanges and give full play to Bengbu City's geographical advantages, which is also the reason for the increase in man-made surface area.

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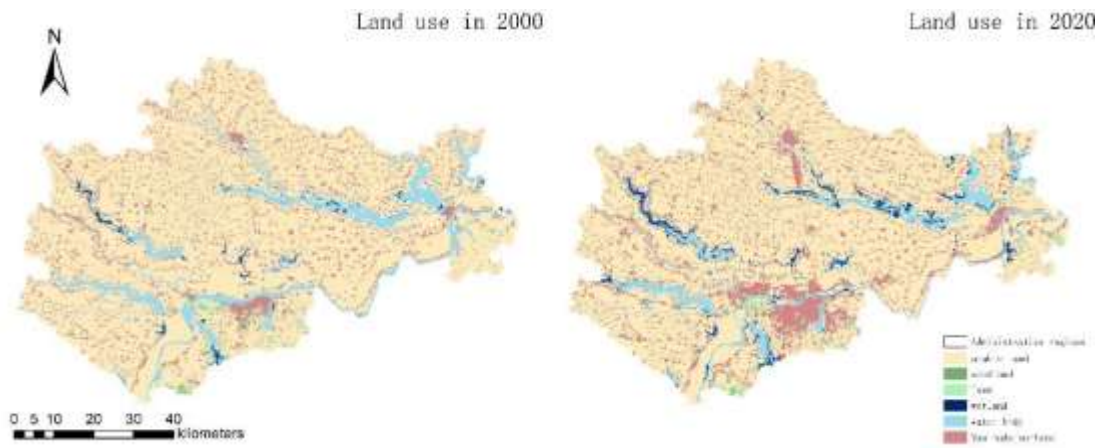


Figure 2-2 Bengbu City Land Use Map for 2000 and 2020

The changing characteristics of land use types in Bengbu City can be observed more visually from the land use maps in Figure 2-2 for the two study periods of 2000 and 2020, which are consistent with the results of the land use transfer matrix, where the transfer in of man-made surfaces is greater than the transfer out. The net increase is greater than zero, with a clear increase in the red area in the figure, which is also accompanied by a decrease in cultivated land, that is, the yellow area in the figure, and also the observation of wetland and mutual transfer in and out of water bodies, i.e., the dark blue and blue portions of the figure.

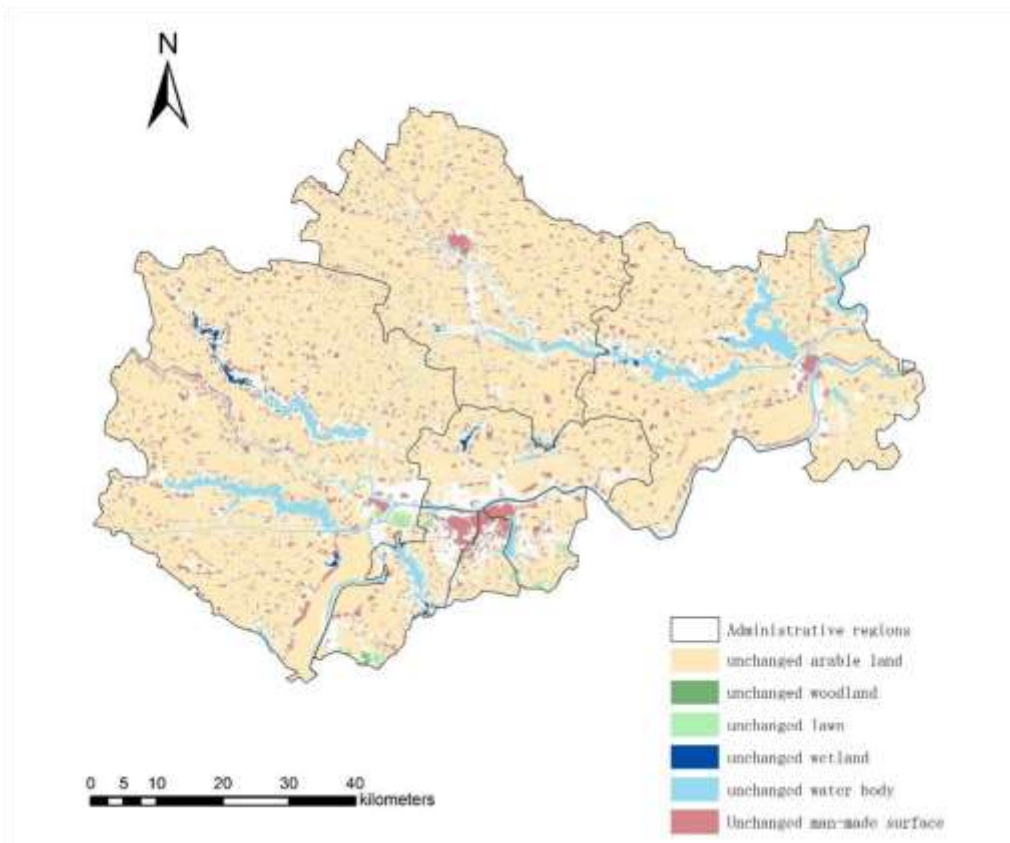


Figure 2-3 Distribution of unchanged land in Bengbu City in 2020

It is more obvious from Figure 2-3 2000-2020 Bengbu city no-change land distribution map that even though there is a certain magnitude of land use conversion area (blank area in Figure 2-3), no-change arable land (yellow area in Figure 2-3) still occupies the majority of the area in the figure, indicating that the basic characteristics of land use in Bengbu city, which is mainly arable land, have not changed. At the same time, a large area of land change in the figure is concentrated around the man-made surface, which also reflects the urban expansion of Bengbu City in the past two decades, resulting in the transformation of land use types around the city.

GIS-Based Prediction of Dynamic Land Use Change and its Structure in Bengbu City

land category	inward shift /hm ²	transfer out /hm ²	Total change/hm ²	Exchange variation /hm ²	Net-increase /hm ²	Dynamics	Magnitude of change
arable land	28562.40	49444.7	78007.1	98889.4	-20882.3	-0.223%	-3.510
woodland	964.80	307.1	1271.9	1929.6	657.6	3.922%	0.111
lawn	4817.25	5015.4	9832.6	10030.8	-198.1	-0.140%	-0.033
wetland	12199.41	2116.5	14315.9	24398.8	10082.8	11.719%	1.695
water body	4070.70	18002.0	22072.7	36004.1	-13931.3	-1.412%	-2.342
Man-made surface	42309.00	18037.6	60346.6	84618.0	24271.3	1.851%	4.080

Table 2-3 Characteristic quantities of land use transformation in Bengbu City, 2000-2020

In terms of land use dynamics, wetland > woodlands > man-made surfaces > grasslands > water bodies > croplands, where the annual rate of change of wetlands reached 11.719%. In terms of the magnitude of change, man-made surface > wetland > woodland > grassland > water bodies > cropland, where the magnitude of change of cropland, grassland and water bodies are less than zero, indicating that their total area is in a state of decrease, while the area of woodland, wetland, and the man-made surface is in a state of increase, where the magnitude of change of cropland and the man-made surface is greater, and the magnitude of change as a clear reflection of the various land types Compared to the degree of change in the total land area of the study area, this result indicates that the drastic changes in cultivated land and man-made surface during the study period have had an important impact on the overall spatial changes in land use in Bengbu City.

3.3 Projections of the evolution of the land-use structure

3.3.1 Determination of initial state matrix and state transfer matrix

Using the satellite image data, the initial probability matrix used the percentage of each land use type to the total area in 2010; since a step of 10 years was chosen, the same steps as those used to calculate the land use state transfer matrix from 2000 to 2020 were used to obtain the land use state transfer matrix between 2010 and 2020. The results are shown in Tables 2-4 and 2-5, respectively.

land type	arable land	water body	artificial lawn	wetland	surface	
initial	0.7659	0.003	0.0117	0.0178	0.0913	0.1104

probability

Table 2-4 Initial probability matrix

Land category 2010	Land category 2020						2010
	arable land	woodland	lawn	wetland	water body	Man-made surface	
arable land	419080.05	63.63	2438.01	183.24	546.21	33281.37	455592.51
woodland	224.10	1024.47	374.13	18.45	54.00	77.76	1772.91
lawn	949.50	316.44	3447.45	778.95	1118.61	356.94	6967.89

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wetland	1587.15	12.24	37.89	7712.82	1035.27	190.26	10575.63
water body	15355.35	39.24	265.41	5673.51	32612.94	360.36	54306.81
Man-made surface	9687.24	40.05	303.39	17.82	16.83	55581.30	65646.63
2020	446883.39	1496.07	6866.28	14384.79	35383.86	89847.99	

Note: Where all land use change areas are in hm^2 .

Table 2-5 State Transfer Matrix by Land Use Type, Bengbu City, 2010-2020

3.3.2 Calculation of the transfer probability matrix

Based on the land use state transfer matrix calculated in Table 2-5, a state transfer probability matrix was created as a proportion of the area of different land types after conversion to the area of that land use type before conversion, as shown in Table 2-6.

category	2000 land Land class 2020					
	arable land	woodland	lawn	wetland	water body	Man-made surface
arable land	0.9199	0.0001	0.0054	0.0004	0.0012	0.0731
woodland	0.1264	0.5778	0.2110	0.0104	0.0305	0.0439
lawn	0.1363	0.0454	0.4948	0.1118	0.1605	0.0512
wetland	0.1501	0.0012	0.0036	0.7293	0.0979	0.0180
water body	0.2828	0.0007	0.0049	0.1045	0.6005	0.0066
Man-made surface	0.1476	0.0006	0.0046	0.0003	0.0003	0.8467

Table 2-6 Probability matrix of state shift by land use type in Bengbu City, 2010-2020

3.3.3 Dynamic simulation of land use change types in Bengbu City

With the help of the MATLAB programming platform, based on the land use structure of Bengbu City in 2010, in 10-year steps, based on the data and formulas in

Table 2-4 and Table 2-5.

$$A^{(n)} = [A_1^{(n)} \quad A_2^{(n)} \quad A_3^{(n)} \quad \dots \quad A_n^{(n)}] = A^{(0)} \cdot P^{(n)}$$

The simulation predicts the proportion of the area of each land use type to the total area of Bengbu City in 2030 and 2040, and the results are shown in Table 2-7.

year	arable land	woodland	lawn	wetland	water body	Man-made surface
2020	75.12	0.25	1.15	2.42	5.95	15.10
2030	73.57	0.22	1.13	2.55	4.10	18.43
2040	72.11	0.21	1.12	2.45	2.99	21.12

Table 2-7 Projected Area Distribution of Future Land Use Types in Bengbu City in 2030 and 2040/%

From the table, it can be found that the trend of future land use change in Bengbu City still shows a decrease in arable land, which is predicted to decrease to 73.57% of the total area by 2030 and 72.11% of the total area by 2040; while the area of the manmade surface shows a trend of the increasing year by year, which is predicted to increase to 18.43% and 21.12% of the total area by 2030 and 2040 respectively. Although the projected changes in the area of woodland and grassland sub-dimensions are not significant, the change of 0.04% from 2020 to 2040 is still not negligible due to the large total area base; the area of wetlands and water bodies is expected to increase to 2.55% and 4.10% of the total area in 2030, respectively, while the proportion of wetlands area decreases to 2.42% in 2040 compared to 2030, while the proportion of water body area will continue to decrease to 2.99% of the total area.

GIS-Based Prediction of Dynamic Land Use Change and its Structure in Bengbu City

4. CONCLUSION

4.1 Trends and Drivers of Land Use Change in Bengbu City

Based on the land use classification data of multispectral image classification, using ArcGIS software, we analyze the spatial evolution trend of various types of land in Bengbu city during the 20 years from 2000 to 2020 using land use dynamic attitude and land use change magnitude, we can see that the city's land use type is mainly cultivated land, and the land use change during the study period shows a continuous decrease of cultivated land and a continuous increase of man-made land surface. The reasons for this trend are as follows.

With the accelerated urbanization and industrialization, Bengbu City was in a state of comprehensive development during the study period, with high input costs, extensive construction, and large-scale industries, while for the improvement of public facilities and the promotion of rural revitalization, a large amount of land was needed for support. Therefore, the demand for all kinds of land in Bengbu City during the study period shows an increase, especially for urban construction land, which also leads to an increasingly sharp contradiction between land supply and demand in Bengbu City. While Bengbu City, is an industrial city, today's industrialization level is in urgent need of improvement, the vitality of market players is not enough, and the overall industrial quality also needs to be improved, so Bengbu City is vigorously promoting the construction of the central city, infrastructure construction, and service facilities during the 13th Five-Year Plan period, while the influx of rural population into the city, to meet the requirements of the urbanization process, leading to the growing trend of the manmade land surface and the arable land area in Bengbu City decrease.

4.2 Future Land Use Structure and Planning Recommendations for Bengbu City

By constructing a Markov model to predict the trend of land use structure change in Bengbu City during the new planning period, Bengbu City will still continue with the current change pattern in the next 20 years, but the decrease of arable land area is small and will not lead to a significant decrease of arable land area in the next 20 years, but during the new planning period, Bengbu City will continue to enhance the level of urban capacity and public services and accelerate the development of a city with important influence in the Huaihe River Basin and the central city in northern Anhui Province, the arable land area may not decrease at the expected rate, and in order to prevent the acceleration of the reduction of the arable land area, this foretells people to strengthen the protection of arable land in the next decade or so, and at the same time should coordinate the layout of urban and rural industries, infrastructure, resources and energy, ecological environment, etc., improve the degree of economical and intensive use of urban construction land itself, and form A spatial pattern of urban and rural areas with a reasonable layout, clear hierarchy, clear functions and distinctive features.

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REFEFCENCES

- 1) Fan Shuping, Cheng Congkun, Liu Youzhao, Zhang Hongmei, Yu Ran. Review and outlook of land use/land cover research in China[J]. Geographical Research and Development,2017,36(02):94-101.
- 2) Chen Jun, Chen Lijun, Li Ran, Liao Anping, Peng Shu, Lu Nan, Zhang Yushu. Statistical analysis of global urban and rural construction land spatial distribution and change based on Globeland30[J]. Journal of Surveying and Mapping, 2015, 44(11):1181-1188.
- 3) Su Yuyan. Analysis of land use change in Wuhu City based on RS and GIS [D]. Anhui Normal University, 2007.
- 4) Niu Xing, Ou Minghao. Research on the dynamic change of regional land use and its structure prediction--Nantong city as an example[J]. Journal of Nanjing Agricultural University: Social Science Edition, 2007, 7(1):7.
- 5) Hulst, Robert A. van. "On the dynamics of vegetation: Markov chains as models of succession." *Vegetatio* 40 (2004): 3-14.
- 6) Gregorio, Antonio Di and Louisa J. M. Jansen. "Land Cover Classification System
- 7) (LCCS): Classification Concepts and User Manual. " (2000).



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Roots as a Substrate in Layering in Lychee

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ABSTRACT: The research was carried out with the objective of evaluating the effect of different substrates based on grass roots, on air layering in lychee plants. The grass seedlings were planted in plastic pots with a capacity of 10 liters with a mixture of soil, sand and barnyard manure (3:1:1). The treatments were composed of Esfagno as a control and forage roots: Tifton, Jiggs, Mombaça and Tanzânia. Ninety days after planting, their roots were removed and placed to dry for later use in layering. After drying the roots, batches weighing 30 grams were made for all species and batches were separated for layering. Air layering was performed on adult lychee plants, in branches between 1 and 2 cm in diameter, with each treatment of five layering. Five plants of each treatment were collected for evaluation. The setting index, green mass and dry mass of the roots were evaluated. Grass roots can be used as a substitute for Esfagno in air layering in lychee trees. The substrates formed by roots of Mombaça and Tanzânia grass showed the best results in replacement of Esfagno in air layering in lychee trees and may be a solution for use in the production of seedlings of this fruit tree.

KEYWORDS: Lychee trees, Seedlings, Grass.

INTRODUCTION

Lychee (*Litchi chinensis* Sonn), a fruit-bearing species belonging to the Sapindaceae family (JIANG et al., 2013). With the increase in production and the delay in obtaining lychee seedlings, the air layering technique is used, which has advantages such as a high percentage of rooting and independence of infrastructure for the acclimatization of seedlings (CASTRO and SILVEIRA, 2003). This procedure has resulted in a shorter period of juvenility, seedlings genetically identical to the matrices and more adapted to field conditions (CARVALHO; SALOMÃO, 2000).

The air layering method for litchi, compared to other types of propagation, has the advantage of presenting a high percentage of rooting, ease of propagation, without the need for infrastructure for seedling production (SMARSI et al., 2008).

Lychee seedlings are produced using vegetative propagation techniques (VIEIRA et al., 2019), and layering is the most used method for producing larger seedlings, reducing the time to produce quality fruits and preserving the characteristics. genetic characteristics of the mother plant (HARTMANN et al., 2011), however, the success of this process depends mainly on the substrate used, which is responsible for ensuring favorable conditions for root development, such as aeration, permeability, water and nutrient retention (FREITAS et al., 2011). According to Campos et al. (2015), the type of substrate may be one of the most important factors in determining the success of rooting.

Substrates go far beyond just supporting the plants, they must provide the plant with the water and nutrients it needs, and the root system with the necessary oxygenation, easy to handle, low cost, high availability and long-lasting (QUINTERO et al., 2011).

With the increase in seedling production and the advancement of agricultural activities linked to the fruit and ornamental seedlings sector, concerns about the origin of the substrates used, the most used are of commercial origin, presenting easier purchase, but with high prices. , mainly due to the freight charged (KRATZ et al., 2013). Thinking about reducing costs and enhancing the resources of the farmer's property, it is proposed to use grass roots for the air layering technique to replace the conventional substrate (Esfagno). The roots have a low cost, and can be produced on the property itself.

Alternative substrates that can be used to minimize very high costs are grass roots such as Tifton, Jiggs, Mombaça and Tanzânia, all of which produce a very thick root with storage capacity.

The research was carried out with the objective of evaluating the effect of different substrates based on grass roots, on air layering in lychee plants.

Roots as a Substrate in Layering in Lychee

MATERIALS AND METHODS

The research was conducted in the seedling production nursery and in the IFES region. The nursery is covered with a polyolefin screen with 50% shading, nursery sector of the Federal Institute of Espírito Santo (IFES-Campus Santa Teresa), district of São João de Petrópolis, Santa Teresa, ES, with geographic coordinates 19°56'12" S and 40°35'28" W, with an altitude of 155 m. The climate of the region is characterized as Cwa, mesothermic, with a dry season in the winter and heavy rainfall in the summer (Köppen classification) (ALVARES et al., 2013), with an average annual rainfall of 1,404.2 mm and an average annual temperature of 19.9°C, with a maximum of 32.8°C and a minimum of 10.6°C (INCAPER, 2011).

The experimental design was in randomized blocks (DBC) with 5 treatments and 4 replications, with each treatment composed of 10 air layering and each plant constituted a block. The grass seedlings were planted in plastic pots with a capacity of 10 liters with a mixture of soil, sand and barnyard manure (3:1:1). Irrigations were performed daily, using micro-sprinklers throughout the experiment, with three daily irrigations, lasting 15 minutes. The treatments were composed of Esfagno as a control and forage roots: Tifton, Jiggs, Mombaça and Tanzânia.

Ninety days after planting, when the development of the plants reached the cut-off point for use by animals, their roots were removed and placed to dry for later use in layering. After drying the roots, batches weighing 30 grams were made for all species and batches were separated for layering. Air layering was performed on adult lychee plants in the IFES region, in branches between 1 and 2 cm in diameter, with each treatment of five layering, totaling 100 layering. Five plants of each treatment were collected for evaluation.

The setting index, green mass and dry mass of the roots were evaluated. The experimental data were submitted to analysis of variance using the F test, meeting the model's assumptions using the Shapiro-Wilk test to verify normality, and the treatment means were compared using the Tukey test at a 5% probability level.

RESULTS AND DISCUSSION

According to Table 1, it is observed that in the variable green mass and dry mass the layering containing Tanzânia grass, Mombaça and Esfagno did not differ statistically, and were statistically superior to the other treatments. Air layering containing Jiggs grass presented the worst result in these variables.

In terms of setting and callus production, there was no statistical difference in any of the treatments (Table 1). According to Hartmann et al. (2011), the wound made at the time of girdling contributes to callus formation, as cellular activity in the injured area is stimulated by an increase in respiratory rate and an increase in auxin, carbohydrate and ethylene levels, stimulating the formation of calluses and also of roots, being a precursor to the formation of adventitious roots.

Table 1. Average values of green matter, dry matter, setting index and callus index

Treatments	Variables			
	Green Matter (g)	Dry matter (g)	Handle Index (%)	Callus Index (%)
Jiggs	1.543 c	0.742 b	80 a	80 a
Tifton	1.761 bc	0.825 b	100 a	100 a
Tanzânia	2.665 a	1.155 a	100 a	100 a
Mombaça	2.669 a	1.178 a	100 a	100 a
Esfagno	2.852 a	1,331 a	100 a	100 a
CV(%)	23.55	20.81	19.64	19.64

Means followed by the same letter in the column, in the same column, do not differ from each other by the Tukey test, at a 5% probability level.

Esfagno presents itself as a material with greater water retention capacity, lightness, acid pH, easy handling and sterility, these points may have influenced the results presented. Esfagno has as main characteristics its lightness, acid pH, high water retention capacity, easy handling and sterility (BONETTI, 1992).

Hartmann et al., (2011) mention that before the formation of roots we have the formation of calluses in some species. However, Lins et al. (2015) in studies with Esfagno and coconut fiber in 'Bengal' lychees at different times of the year and found the lowest rooting rates in May and July, however, at this time they had the most developed callus mass. This fact indicates that the formation of roots in lychee layers does not depend on the formation of calluses, especially when it comes to substrates such as coconut fiber and seaweed (VIEIRA et al., 2019)

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Mombaça grass and Tanzânia grass showed similar characteristics to commercial material (Esfagno), this fact may be due to the physiological characteristics of forages, in addition to these characteristics, they have a high content and capacity to store carbohydrates and proteins. Another important point presented by these grasses is, according to Herling et al. (2001), resist periods of water stress and compete for nutrients in the soil, promoting sufficient mass for propagation by layering.

Souza et al. (2015), studying the characteristics of Esfagno, found water retention capacity (35.73 mL 50 cm⁻³), total porosity (82.40%), electrical conductivity (194.80 $\mu\text{S cm}^{-1}$) and hydrogenion potential in the aqueous extract of the substrate (5.0), resources that are considered ideal for the development of roots in layering.

Vieira et al. (2019), in studies with Tifton 85 grass, reported that this, as a substrate, presented easy handling and cultivation, in addition to good adaptation to Brazilian soil conditions. The observation is that Tifton, like the other substrates used in this research, may have conferred lightness, aeration and good moisture retention in the layering, a fact that suggested the results of this research, however, further characterization studies of these substrates are needed.

In addition to the characteristics, these grass species can also be used for grazing, as well as in hay and silage, with good acceptance by cattle, buffaloes, horses, sheep and goats (SANTOS et al., 2010). Vieira et al. (2019), cite the good result of Tifton 85 grass, the root system used as an alternative substrate to Esfagno due to the strong potential of lychee stratification, which can replace Esfagno as a substrate in air layering in lychees.

CONCLUSION

Grass roots can be used as a substitute for Esfagno in air layering in lychee trees.

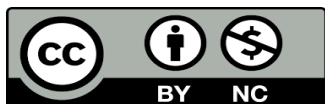
The substrates formed by roots of Mombaça and Tanzânia grass showed the best results in replacement of Esfagno in air layering in lychee trees and may be a solution for use in the production of seedlings of this fruit tree.

REFERENCES

- 1) ALVARES, C.A.; STAPE, J.L.; SENTELHAS, P.C.; GONÇALVES, J.L.M. & SPAROVEK, G. Köppen's climate classification map for Brazil. *Meteorologische Zeitschrift*, v.22, n.6, p.711-728, 2013.
- 2) BONETTI, E.J. Some substrates used in the propagation of ornamental species, cuttings and seeds. Lavras: ESAL, 1992. 9 p.
- 3) CAMPOS, G.N.F.; ARRIEL, E.F.; NOBERTO, M.N.S.; JUNIOR, J.A.F.; SILVA, V.V.M.; FREIRE, A.L.O. Cloning of *Cnidocolus quercifolius* by air layering. *Forest Sciences*. v.25, n.3, p.743–749, 2015.
- 4) CARVALHO, C.M.; SALOMON, L.C.C. Lychee culture. Viçosa: UFV, 2000. 38 p. (Extension Bulletin, 43).
- 5) CASTRO, L.A.S.; SILVEIRA, C.A.P. Vegetative propagation of the peach tree by air layering. *Brazilian Journal of Fruticulture, Jaboticabal*, v. 25, no. 2, p. 368-370, 2003.
- 6) FREITAS, S.D.J.; CARVALHO, A.D.; BERILLI, S.D.S.; SANTOS, P.C.; MARINHO, C.S. Substrates and Osmocote® in the nutrition and development of micropropagated seedlings of pineapple cv. Victory. *Brazilian Journal of Fruticulture*, v. 33, p.672–679, 2011.
- 7) HARTMANN, H.T.; KESTER, D.E.; DAVIES JUNIOR, F.T.; GENEVE, R.L. *Plant propagation: principles and practices*. 8th ed. New Jersey: Prentice Hall, 2011. 915 p.
- 8) HERLIN, V.R.; RODRIGUES, L.R.A.; LUZ, P.H.C. Grazing management. In: *Symposium on pasture management: planning and production systems in pastures*. p.157-192, Piracicaba. Anais... Piracicaba: Luiz de Queiroz Agrarian Studies Foundation, 2001.
- 9) INCAPER Planning and programming of actions for Santa Teresa. Technical assistance and rural extension program PROATER, Department of Agriculture, 2011.
- 10) JIANG, G. et al. Identification of a novel phenolic compound in litchi (*Litchi chinensis* Sonn.) pericarp and bioactivity evaluation. *Food Chemistry*, v.136, p.563-568, 2013.
- 11) KRATZ, D.; WENDLING, I.; NOGUEIRA, A. C.; SOUZA, P.V.D. Physical and chemical properties of renewable substrates. *R. Árvore, Viçosa*, v.37, n.6, p.1103-1113, 2013.
- 12) LINS, L.C.R.; SALOMON, L.C.C.; CECON, P.R.; SIQUEIRA, D.L.D. The lychee tree propagation by layering. *Brazilian Fruit Growing Magazine*. v.37, n.2, p.480–487, 2015.
- 13) QUINTERO, M.; GONZÁLEZ, C.; GUZMÁN, J. Substrates for vegetable crops and cut flowers. In: V. Flórez R. (Ed.), *Substrates, climate management, automation and control in soilless cropping systems*. Bogota: One. national from Colombia, p.79-108, 2011.
- 14) SANTOS, M.V.; FREITAS, F.C.L.; FERREIRA, F.A.; CARVALHO, A.J.; BRAZ, T.G.S.; CAVALI, J.; RODRIGUES, O.L. Tolerance of Tifton 85 to glyphosate at different times of application. *Planta Daninha*, v.28, n.1, p.131–137, 2010.

Roots as a Substrate in Layering in Lychee

- 15) SOUSA, G.G.; ROSA, Y.B.C.J.; DE MACEDO, M.C.; AND SOARES, J.S. BR Acclimatization of *Brassavola tuberculata* Hook soaked with ANA on different substrates. *Horticultura Brasileira*, v.33, n.2, p.208-215, 2015.
- 16) SMARSI, R.C.; CHAGAS, D.A.; REIS, L.L.; OLIVEIRA, G.F.; MENDONÇA, V.; TROPALDI, L.; WORST.; SCARPARE FILHO, J.A. Indolebutyric acid concentrations and substrate types in the vegetative propagation of lychee. *Brazilian Journal of Fruticulture, Jaboticabal*, v. 30, no. 1, p. 7-11, 2008.
- 17) VIEIRA, K.M.; BAITELLE, D.C.; PAIXÃO, M.V.S.; SANTOS, P.C.; BARONI, D.F.; CARVALHO, A.J.C. Tifton roots replace sphagnum moss as substrate for air-layering litchi tree. *Horticultural Act.* v.1266. p.405-411, 2019.



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Model of Digital Literacy and Organizational Support in Determining Teacher Performance: An Empirical Study



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ABSTRACT: The rapid development of information technology today requires teaching staff or teachers to be able to achieve successful learning based on skills in using information technology and media. In addition to mastering information technology in learning, there needs to be organizational support that will later convince them in teaching, and meet the learning achievement standards set. This study aims to analyze and explain the role of digital literacy and organizational support in determining self-efficacy, as well as their effect on teacher performance at Lentera Kasih School.

This study employs a quantitative methodology and polls all of the 109 instructors that work at Lentera Kasih Schools in Bali, Jakarta, and Makassar. While the study's samples were all drawn from the general community. The SEM-PLS study demonstrates that the rise in teachers' self-efficacy is influenced by both organizational support and digital literacy. While digital literacy does not directly affect teacher performance, both organizational support and self-efficacy have a direct positive and considerable impact. Digital literacy can significantly affect teachers' performance if self-efficacy is used as a mediator.

KEYWORDS: Digital literacy; organizational support; self-efficacy; teacher performance

I. INTRODUCTION

Technological developments have changed the world of education in carrying out various activities. The Covid-19 pandemic has provided wisdom, one of which was the accelerated use of digital technology, especially in the world of education (Kahveci, 2021). Where teachers, education personnel, and students become accustomed to using digital facilities to transform data and information that needs to be accessed. The presence of technology forms a digital society. Digital literacy skills are the most basic and crucial thing in dealing with technological developments to facilitate educational activities (Prior, et al., 2016). Digital literacy skills are absolutely owned by the entire academic community within the scope of the world of education.

The productivity of an educational organization was determined by the performance of its members. Performance is the results achieved by a person according to the measures applicable to the job of the person (As'ad, 2012). On the other hand, Bernardin & Russell (2013) defined performance as the results achieved by certain functions and positions in a certain period of time. So, performance was defined as a record of the output produced by a particular job function or activity carried out in a certain period of time. The performance of teachers in schools referred to the behavior of teachers in carrying out teacher work, namely teaching. Teacher performance was closely related to lesson planning, the process of teaching and learning activities in the classroom, and follow-up learning. Based on this view, teacher performance was the behavior associated with teaching activities carried out by a teacher in the classroom (Gaynor, 2018).

The performance of teachers that is expected to be achieved refers to Law Number 14 of 2005 concerning Teachers and Lecturers. Article 10 paragraph (1) states that "Teacher competencies as referred to in Article 8 includes pedagogical, personality, social, and professional competencies obtained through professional education" Pedagogical competencies are the ability to understand students, design and implement learning, evaluate learning outcomes, and develop students to actualize their various potentials. Personality competencies is a personal ability that reflects a steady, stable, mature, wise, and authoritative personality, a role model for students, and a noble character. Professional competencies are a broad and deep mastery of learning materials, which includes mastery of the subject curriculum material at school and the scientific substance that overshadows the material, as well as mastery of the scientific structure and methodology. Social competencies is the teacher's ability to communicate and associate effectively with students, education personnel, students' parents/guardians, and the surrounding community.

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In the digital era like today, it can no longer be avoided, therefore high digital literacy skills are also needed in every teacher. With digital literacy skills at this time, information will be obtained very easily. Permadi, et al. (2018) stated that digital literacy was a person's ability to use information and communication technology to be able to find, evaluate, utilize, create and communicate information, with competitive skills, ethics, social, emotional, and technological aspects.

Another factor that affects teacher performance is self-efficacy. Bandura (1997) stated that self-efficacy was a belief in one's ability to perform a task in order to achieve goals and overcome various obstacles encountered. Self-efficacy was one's own perception of how well one can function in a given situation. Self-efficacy was related to the belief that the self has the ability to perform the expected actions. Magistra, et al. (2021) said that self-efficacy can affect teacher performance. Karim, at al. (2021) also said that self-efficacy was a vital aspect to be able to teach well and get good academic results.

The next factor that also affects teacher performance was organizational support. Organizational support was an employee's perception of how much the organization has valued employee contributions and organizational concern for employee conditions and needs (Chiang & Hsieh, 2012). The teachers who believe that the organization values their contributions and cares about their well-being tend to reciprocate by doing good work and assignments (Andriany & Meiyanto, 2021). Teachers who feel cared for and valued by the institution will tend to feel more satisfied and more committed to their work. This shows that the perception of organizational support can encourage higher teacher performance. Siregar, et al. (2022), in his research, stated that there is a positive and significant influence between organizational support and self-efficacy. Research conducted by Wijaya & Ie (2021) and Riantoko, et al. (2017) found that perceived organizational support can positively and significantly affect performance.

Meanwhile, digital literacy can also determine self-efficacy. Improved digital literacy skills can strengthen a person's self-efficacy. This is in accordance with the results of the study of Muslims & Eid (2020) that the use of digital applications to obtain valuable and useful information will convince them to interact on-line. Akbar & Anggraeni (2017) also found a significant relationship between digital literacy and self-directed learning in the learning process. In addition, organizational support also determines self-efficacy. Organizational appreciation and concern will foster self-efficacy for employees to carry out their duties and work well (Chiang & Hsieh, 2012). The results of research conducted by Andriany & Meiyanto (2021) and Firnanda & Wijayati (2021) have found that the more effective organizational support will increase the self-efficacy of employees.

In this study, efforts will be examined to explain the self-efficacy of teachers in the learning process based on digital literacy and organizational support. Based on this, it is able to improve the performance of teachers in applying the values of education and service to students at the Lentera Kasih Schools.

II. LITERATURE REVIEW AND RESEARCH MODEL

A. Digital Literacy

Basically, literacy is the oral and written language used in everyday life that includes reading, writing, speaking and listening. Media literacy in general according to Baran (2013) is the ability to effectively and efficiently understand and use all forms of mediated communication. Communication serves to bridge the relationship between humans in society (Cangara, 2015), so to support the achievement of that function, humans need to have good literacy skills in order to utilize all types of media effectively and efficiently. Digital media is associated with skills in using computers, social media, and the Internet (Hobbs, 2010). Koltay (2011) presents the concept of digital literacy as the awareness, attitude, and ability of individuals to use digital tools and facilities appropriately to identify, access, manage, integrate, evaluate, analyze, synthesize digital resources, build new knowledge, create media expressions, and communicate with others.

The European Commission developed teachers' digital competencies consisting of four basic competencies namely information competencies (European Commission, 2014). Including teachers' competencies in searching for information via the internet, assessing the accuracy of the information, and responsible use of that information; communication competencies, including teachers' competencies to participate in discussion forums and use various social media features to communicate; content creation competencies, including teachers' competencies to create and submit various content and documents; and security competencies, including teachers' competencies to maintain data security and privacy via the internet.

B. Organizational Support

Organizational support is an teachers' perception of how much the organization has valued employee contributions and organizational concern for the conditions and needs of teachers' (Sharma & Dhar, 2016). This teachers' perception assesses that the organization has valued contributions, listened to complaints, paid attention to the lives and welfare of teachers', and treated teachers' fairly. Teachers perceive that the organization is a source of socio-emotional needs such as appreciation, care,

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and tangible benefits. In addition, teachers develop perceptions of organizational support to meet needs for approval, appreciation, and membership (Rhoades & Eisenberger, 2012).

Teachers' perceptions of organizational support are considered to have an influence on teachers' performance. Teachers' who believe that the organization has valued contributions and cares about employee welfare tend to reciprocate by doing a good job (Chiang & Hsieh, 2012). Even when teachers' performance is considered unsatisfactory, organizations can improve teachers' performance by paying attention to employee needs. Employees will improve their performance and sense of responsibility for their work so that organizational goals can be achieved. An analysis conducted by Rhoades & Eisenberger (2012) shows that employees perceive three organizational treatments that have a relationship with perceived organizational support, namely fairness, supervisor support, and organizational rewards and favorable job conditions.

C. Self-Efficacy

Self-efficacy is an attitude or belief in one's own abilities so that in their actions one is not too anxious, feel free to do things according to their wishes and takes responsibility for their actions, are polite in interacting with others, has a sense of achievement and can recognize their own strengths and weaknesses (Bandura, 1997). The formation of self-confidence is a process of learning how to respond to various stimuli from outside himself through interaction with his environment (Kadi, 2016). Self-efficacy is one of the important aspects of personality in a person. Self-efficacy is the belief that a person is able to solve a problem in the best way and can provide something pleasant for others. Self-efficacy is needed by both children and parents, individually and in groups (Ghufron & Risnawati, 2019). Based on some of these definitions, it can be concluded that self-efficacy is an individual's awareness of his strengths and abilities, belief in his confidence that can act according to his certainty, and the ability to control it in achieving his expected goals.

Ghufron & Risnawati (2019) mentioned the indicators contained in self-efficacy, among others, belief in one's own abilities, namely a person's positive attitude about himself that he really understands what he is doing, optimism, namely a positive attitude of the person who always has a good view in the face of everything about himself, his hopes and abilities, objectively looking at problems or everything according to the truth as it should be, not according to personal truth or according to himself, responsible, namely a person's willingness to bear everything that has become a consequence, and rational, namely analyzing a problem, a thing, an event by using thoughts that are accepted by reason and in accordance with reality.

D. Teacher's Performance

Hasibuan (2017) states "performance is a result of the work achieved by a person in carrying out the tasks assigned to him which is based on skills, experience, and seriousness and time". In contrast, Sedarmayanti (2009) states that aspects of performance include: quality of work, promptness, initiative, capability, and communication. Even these five aspects can be used as a measure in conducting an assessment of the level of employee performance. From Indonesian Law Number 14 (2005), there are four indicators, namely: pedagogic, personality, professional, and social competencies. Teacher performance is very important for a school because the performance of teachers can contribute to the achievement of the educational process organized by the school. Meanwhile Sutrisno (2012) state that the factors that influence employee (teachers) performance include organizational support, education, self-efficacy, skills, work ethic attitudes, nutrition and health, income levels, work environment and work climate, technology, production facilities, social security, management (leadership), achievement opportunities. This research focuses on efforts to improve teacher performance which is determined by the role of digital literacy, organizational support, and self-efficacy. Thus, the following research model can be proposed in Figure 1.

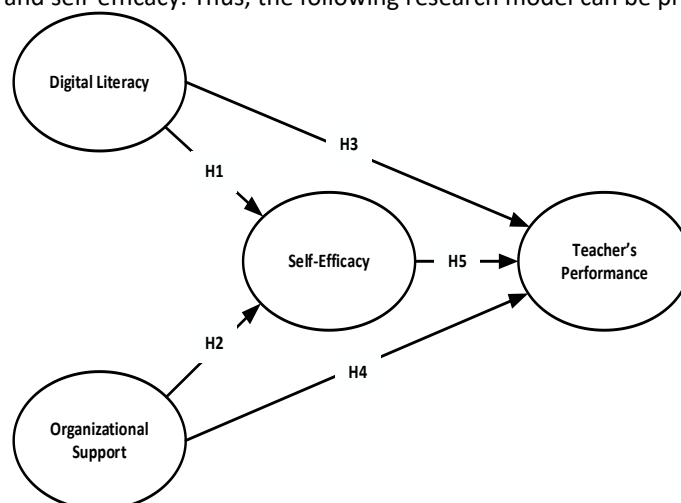


Figure 1. Research Model

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Based on the explanation above, it can be determined five hypotheses in this study.

- H1: Digital literacy has a positive effect on self-efficacy.
- H2: Organizational support has a positive effect on self-efficacy.
- H3: Digital literacy has a positive effect on teachers' performance.
- H4: Organizational support has a positive effect on teachers' performance.
- H5: Self-efficacy has a positive effect on teachers' performance.

III. RESEARCH METHODOLOGY

This research was survey research using a questionnaire as the main research instrument to explain the effect of digital literacy and organizational support through self-efficacy on teachers' performance. The population in this study were all teachers from three Lentera Kasih Schools from Bali, Jakarta, and Makassar, which had 109 teachers. While the samples used in this study were all members of the population. The Likert five-point scale is used to get the perception of teachers of the indicators related to the variables studied, from strongly disagree with a score of 1 to strongly agree with a score of 5.

In the research instrument, the digital literacy variables applied multi-item indicators from European Commission (2014), namely: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. Organizational support variable used of multi-item indicators refers to Rhoades & Eisenberger (2012), namely: appreciation, carrier development, working condition, and welfare. For self-efficacy variables, multi-time indicators by Ghufroon & Risnawati (2019) were used, namely: self-confidence, optimism, responsible, rational, and objective. In teachers' performance variables, measurements used four indicators adapted from Indonesian Law Number 14 (2005), namely: pedagogic, personality, professional, and social competencies. Before the questionnaire was delivered to the target, a trial was carried out using 35 sample units. This is done to ensure the calibration of the research instrument with the validity and reliability test (Ghozali, 2014).

The results of the questionnaire data were collected and a descriptive analysis was performed to explain the respondent's profile. Followed by inferential structural equation modeling analysis with the Smart-PLS v.3.0 program to test the hypothesis and to test the mediation effects.

IV. RESULTS AND DISCUSSIONS

A. Results

A study of the characteristics of the respondents was done in order to explain the relationship between organizational support provided by self-efficacy and the impact of digital literacy on teachers' performance at Lentera Kasih Schools. The purpose of this study is to create a profile of the responder, including information on their gender, age, educational background, and working year. Table 1 displays the findings of the analysis conducted.

Table 1. Characteristics of Respondents

Information	Quantity	Percentage (%)
Number of Samples	109	100
Gender:		
Men	33	30.3
Women	76	69.7
Age:		
21-30 years old	31	28.4
31 - 40 years old	50	45.9
>40 years old	28	25.7
Education:		
Bachelor	98	89.9
Post Graduate	11	10.1
Working year:		
< 1 year	24	22.0
1 – 5 years	46	42.2
6 – 10 years	24	22.0
> 10 years	15	13.8

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The characteristics of respondents based on gender shows that female teachers are dominating by contributing of 69.7 percent, while male teachers only have a distribution of 30.3 percent. Characteristic based on age shows that respondents aged 31-40 years have the highest distribution of 71.8 percent, followed by age 21-30 with 28.4 percent and teachers who were above 40 years old with 25.7 percent. From the education background, teachers at Lentera Kasih Schools with bachelor degrees were dominating the distribution by having 89.9 percent then followed by post-graduate teachers with 10.1 percent. Most of the respondents had been working at Lentera Kasih Schools for 1-5 years by having 42.2 percent of the distribution, followed by <1 year of work and between 6-10 years of working with 22.0 percent, the least percentage was those who had been working there for more than 10 years.

Inferential Analysis: Testing Direct and Indirect Effect

Using SEM-PLS analysis and the Smart-PLS v.3.0 tool, this study examined hypothesis testing and the function of mediation. This analysis method is being used to investigate the influence of self-efficacy mediation variables and predict and explain the impact of organizational support and digital literacy on teachers' performance.

Outer Model Evaluation

According to convergent validity analysis findings (Table 2), all variable constructs have outer loading values greater than 0.7 and AVE values greater than 0.50. These findings suggest that every variable's indication be examined as a valid and reliable (Ghozali, 2014).

Additionally, discriminant validity testing is required. by contrasting the value of each variable's Square Root of the Average Variance Extracted (**√AVE**) with a correlation between latent variables (Ghozali, 2014). Because the square root of the average variance extracted (**√AVE**) value is bigger than the correlation coefficient of its latent variable, all variable constructs have a decent discriminant, as shown in Table 3.

When evaluating the dependability of variable constructs, Cronbach's alpha analysis and composite reliability are applied (Hair, et al., 2011). According to data from Table 4, Cronbach's Alpha and Composite Reliability Values are all greater than 0.70 for every variable that was examined. These findings show that all variables have a high degree of reliability (Ghozali, 2014).

Table 2. Convergent Validity Analysis

Variables	Indicators	Outer Loading	AVE
Digital Literacy	X1.1	0.903	0.821
	X1.2	0.920	
	X1.3	0.904	
	X1.4	0.903	
	X1.5	0.900	
Organizational Support	X2.1	0.889	0.818
	X2.2	0.907	
	X2.3	0.907	
	X2.4	0.915	
Self-Efficacy	Y1.1	0.928	0.823
	Y1.2	0.907	
	Y1.3	0.924	
	Y1.4	0.877	
	Y1.5	0.898	
Teacher Performance	Y2.1	0.950	0.876
	Y2.2	0.936	
	Y2.3	0.944	
	Y2.4	0.914	

Table 3. Discriminant Validity Analysis and Reliability Test

Variables	AVE	√AVE	DL	OS	SE	TP	Cronbach's Alpha	Composite Reliability
Digital Literacy (DL)	0.821	0.906	0.906	0.690	0.694	0.852	0.945	0.958
Organizational Support (OS)	0.818	0.904	0.690	0.904	0.741	0.784	0.926	0.947
Self-Efficacy (SE)	0.823	0.907	0.694	0.741	0.907	0.816	0.946	0.959
Teacher's Performance (TP)	0.876	0.936	0.852	0.784	0.816	0.936	0.953	0.966

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Inner Model Evaluation

The predictive relevance model (Q^2), which measures how well the observed values are generated by the model, is taken into consideration while evaluating the inner model. The coefficient of determination for all dependent variables forms the basis of Q^2 . The range of the magnitude of Q^2 is 0 to 1. The closer the value is to 1, the more accurate the model is (Hair, et al., 2011).

Table 5. Predictive Relevance Model Analysis

Variables	R Square (R^2)
Self-Efficacy	0.613
Teacher's Performance	0.841
Calculation: $Q^2 = (1 - [(1 - R_1^2) (1 - R_2^2)]) = (1 - [(1 - 0.613) (1 - 0.841)]) = 0.9385$	

The predictive relevance model (Q^2) calculation results show that the value is 0.9385, which is nearly equal to 1. (Table 5). This outcome can demonstrate the structural model's strong compatibility. 93.85% of the data can be described by the model, and the remaining 6.15 percent can be attributed to errors or other variables that are not included in the model, according to the analysis's findings.

In this study, five direct effect hypotheses will be investigated. If both the T-Statistic value and the coefficient of the positive pathway are greater than 1.96 at the level of significance (P-value) of 0.50, the hypothesis can be accepted. The outcomes hypothesis testing can be presented in Table 6.

The results of hypothesis testing on the direct effect (Table 6) show that digital literacy has a positive and significant effect on self-efficacy, so H1 is accepted. This result is indicated by a positive path coefficient of 0.350 with T-statistic = 2.946 (T-statistic > 1.96). In the H2 test, organizational support has a positive and significant effect on self-efficacy. This result is indicated by the positive path coefficient of 0.500 with T-statistic = 4.130 (T-statistic > 1.96). Furthermore, digital literacy has a positive and significant effect on teachers' performance and accepts H3. This result is indicated by the path coefficient of 0.480 with T-statistic = 4.654 (T-statistic > 1.96). Organizational support is proven to have a positive and significant on teacher performance with a path coefficient of 0.211 and T-statistic = 2.459 (T-statistic < 1.96), thus H4 is accepted. Self-efficacy has a positive and significant effect on teacher performance with a positive path coefficient of 0.327 with T-statistic = 2.895 (T-statistic > 1.96), thus accepting H5.

Table 6. Testing The Direct Effect Hypothesis

Effects	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	P Values	Remarks
Digital Literacy	0.350	0.361	0.119	2.785	0.003	H ₁ accepted
Organizational Support	0.500	0.494	0.121	3.885	0.000	H ₂ accepted
Digital Literacy	0.480	0.488	0.103	4.518	0.000	H ₃ accepted
Organizational Support	0.211	0.207	0.086	2.446	0.014	H ₄ accepted
Self-Efficacy	0.327	0.322	0.113	2.828	0.004	H ₅ accepted

The testing the indirect effect, an analysis was carried out using specific indirect effects on the Smart-PLS output (Ghozali, 2014). The results of testing the indirect effect of the research model can be presented in Table 7 below.

Table 7. Indirect Effect Testing

Specific Indirect Effects	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	Remarks
Digital Literacy	0.114	0.117	0.059	1.946	No Significant
Organizational Support	0.163	0.158	0.067	2.418	Significant

The results of the indirect effect examination in Table 7 above can be conveyed that self-efficacy is proven not to mediate the indirect effect of digital literacy on teacher performance. This is because the T-statistic on the specific indirect effect is not significant ((T-statistic < 1.96). On the other indirect effect, self-efficacy can mediate the indirect effect of organizational support

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on teacher performance with a T-statistic of 2,418 (T-statistical > 1.96). For the results of the overall analysis of this study can be shown in Table 8 and Figure 2.

Table 8. Recapitulation of Direct, Indirect, and Total Effects

Effect	Direct Effect	Indirect Effect	Total Effect
Digital Literacy	0.350 ^S	-	0.350
Organizational Support	0.500 ^S	-	0.500
Digital Literacy	0.480 ^S	0.114 ^{NS}	0.594
Organizational Support	0.211 ^S	0.163 ^S	0.374
Self-Efficacy	0.327 ^S	-	0.327

Remark: S = Significant (T- statistic > 1.96); NS = No Significant (T- statistic < 1.96)

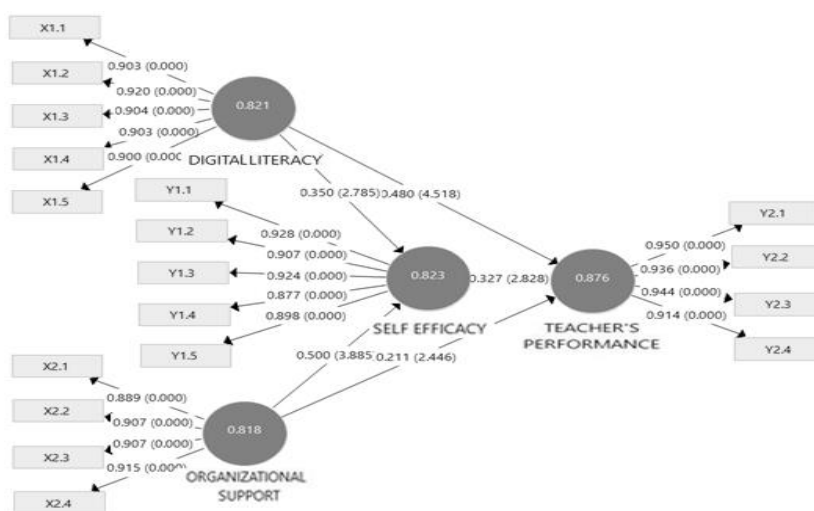


Figure 2. Full Model Smart-PLS (Bootstrapping)

B. Discussion

Digital literacy has been shown to have a positive and significant effect on self-efficacy. These results indicate that increasing digital literacy can strengthen the self-efficacy of teachers at Lentera Kasih School. Digital literacy which is reflected in information and data literacy, communication and collaboration, digital content creation, security, and problem-solving can increase self-efficacy. This finding is in line with the research conducted by Prior, et al. (2016) that the application of digital literacy is very important for strengthening self-efficacy. The same thing was also found by Kahveci (2021) that the higher the digital literacy mastered, the higher the teacher's self-efficacy. In addition, Akkoyunlu & Yilmaz (2011) ensure that efforts to increase the level of digital literacy need to be carried out with continuous guidance for teachers.

Organizational support has a positive and significant effect on self-efficacy. These results indicate that increasing organizational support can increase the self-efficacy of teachers at Lentera Kasih School. Organizational support is reflected in the provision of rewards, development, working conditions, and welfare. Organizational support in the form of appreciation by assessing the contribution of teachers through positive feedback (verbal persuasion) on employee work performance, will encourage teachers to participate more actively in improving their ability to complete work/tasks (Chiang & Hsieh, 2012). The support of the organization builds strong trust in the individual. This will increase self-efficacy by creating confidence and hope that the organization cares about its well-being by always being ready to provide material or emotional assistance and resources when needed (Sihag & Sarikwal, 2015). Attention to employee welfare is also organizational support that can increase employee self-efficacy and ultimately increase employee willingness to work (Mete, et al., 2014). Andriany & Meiyanto (2021) found that employees who work in a work environment where the company values contributions and cares about the welfare of its employees will increase self-efficacy employee. In addition, the findings of Purwaningtyas & Septyarini (2021) show that high self-efficacy has an impact on high employee work involvement. Employees with high self-efficacy are more prompt in completing their tasks (Firnanda & Wijayati, 2021).

Digital literacy has been shown to have a direct positive and significant impact on teacher performance. These results indicate that increasing digital literacy can improve teacher performance at Lentera Kasih School. These results are following the findings

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of Wordu, et al. (2021) that the components of digital literacy include digital communication, digital security, and digital creativity on teacher performance. With good mastery of digital literacy, teachers can find safe learning resources and develop them to help the learning process in the classroom. Individuals can communicate more easily and quickly in completing their work (Moharrami, et al., 2020). These findings are following the findings of Abas, et al. (2019) and Hoseini, et al. (2020) which state that digital literacy has a positive and significant effect on individual performance. However, the indirect effect of digital literacy on teacher performance through self-efficacy mediation showed insignificant results. These results indicate that digital literacy that has been applied so far by teachers at Lentera Kasih School seems to still not convince themselves to support the learning process, so they cannot determine the achievement of their work in educating students. This finding by Agim & Azolo (2021) when individuals still consider digital literacy to be not important, their confidence in using digital literacy to support and complete their work is very low.

Organizational support has been shown to have a direct positive and significant impact on teacher performance. These results indicate that with the existence of organizational support, the performance of teachers at the Lentera Kasih School is increasing. Providing support to teachers in terms of welfare, availability of work support facilities, and various professional development programs and open career paths can make them feel obliged to work better and ultimately improve their performance. These results are in accordance with those found by Abou-Moghli (2015), Weny, et al. (2021), and Shabbir, et al. (2021). The indirect effect of organizational support on teacher performance through self-efficacy mediation also shows significant results. These results give meaning, organizational support can provide the strengthening self-confidence of teachers in educating students so that their work results will increase. According to the findings of Chen, et al. (2019), employees who feel there is support from the organization in carrying out their duties and work will be more confident in themselves to carry out their work properly and responsibly, so in the end, their performance will increase.

Self-efficacy has been proven to have a positive and significant effect on teacher performance. These results indicate that by having higher self-efficacy, teachers can improve their performance at Lentera Kasih School. Self-efficacy which is reflected in self-confidence, optimism, responsibility, rationality, and objectivity can improve teacher performance. High self-confidence and optimism make teachers sure they can complete the task well. This finding is in agreement with Nusannas, et al. (2020) who state that the higher the level of one's self-efficacy, the higher the belief in one's ability to complete work. Similarly, the empirical results from Machmud (2018), Turay, et al. (2019), and Rahmazal & Dewi (2022) also found that self-efficacy had a positive and significant effect on individual performance.

V. CONCLUSION

From the result of the analysis and discussion carried out, it can be concluded that digital literacy and organizational support can both increase teachers' self-efficacy at Lentera Kasih Schools. An increase in a teacher's self-efficacy can increase the teacher's performance. In addition, it was found that organizational support can determine teachers' performance, either directly or indirectly through the mediation of self-efficacy. In other information, digital literacy does not affect teachers' performance through the mediation of self-efficacy. However, digital literacy was found to have no indirect effect on teacher performance through mediating self-efficacy

The results of this study provide suggestions for guidance for the managers of the Lentera Kasih School to increase organizational support in the form of appreciation for the performance of teachers, provide more opportunities for teachers to develop themselves, pay more attention and improve the conditions of facilities and the work environment and pay more attention to the welfare of teachers. Support in this form can directly provide a sense of obligation to carry out tasks and work well, or indirectly increase self-efficacy to carry out tasks and work well, both of which can improve teacher performance even better. The digital literacy skills of teachers at Lentera Kasih Schools must be maintained or improved. Initial training for new teachers and further training around digital competencies including accessing and using data and information, communicating using digital media, creativity using digital media, and maintaining security in digital media must always be routinely held and developed. The formation of a digital team or digital literacy coordinator can help teachers to get the latest information, the latest tips, and other developments in the digital world. Future research can adapt the research model that has been produced by developing more relevant indicators used in each variable. In addition, the opportunity to use other factors in the digital literacy model to improve individual performance.

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REFERENCES

- 1) Abas, M. K., Yahaya, R. A., and Din, M. S. F. (2019). Digital literacy and its relationship with employee performance in the 4IR. *American Psychological Association 7th edition Journal of International Business, Economics and Entrepreneurship* e-ISSN :2550-1429 Volume 4, (2): 29-37. <http://ir.uitm.edu.my/id/eprint/28910/>
- 2) Abou-Moghli, A. (2015). The Role of Organizational Support in Improving Employees Performance. *International Business Research*. Vol 8. <https://doi.org/10.5539/ibr.v8n2p198>
- 3) Andriany, D. and Meiyanto, I.S. (2021) The mediating role of self-efficacy on work engagement and perceived organizational support. *Cognicia*. 9, 2 (Oct. 2021), 130-136. Doi: <https://doi.org/10.22219/cognicia.v9i2.18265>.
- 4) Agim, E. C., and Azolo, E. M. (2021). Digital Literacy And Job Performance Of 21st Century Library Staff In Imo State. *Library Research Journal*, 4(1), 15-26.
- 5) Akkoyunlu, B. and Yilmaz, A. (2011). Prospective teachers' digital empowerment and their information literacy self-efficacy. *Egitim Arastirmalari-Eurasian Journal of Educational Research*, 44, 33-50.
- 6) As'ad, Moh. 2012. *Industrial Psychology*. Liberty. Yogyakarta.
- 7) Bandura, A. (1997) *Self-efficacy: The exercise of control*. New York: Freeman.
- 8) Baran, S.J. (2013). *Introduction to mass communication: media literacy and culture*. New York: McGraw-Hill
- 9) Bernardin, H. J., and Russell, J. E. A. (2013), *Human Resource Management*, Sixth Edition. New York: McGraw-Hill
- 10) Cangara, H. (2015). *Introduction to Communication Science*. Second print. PT RajaGrafindo Persada. Jakarta
- 11) Chen, T., Hao, S., Kaifang, D., Feng, X., Li, G., and Liang, X. (2019). The impact of organizational support on employee performance. *Employee Relations: The International Journal*. ahead-of-print. 10.1108/ER-01-2019-0079.
- 12) Chiang, C., and Hsieh, T. (2012). The impacts of perceived organizational support and psychological empowerment on job performance: the mediating effects of organizational citizenship behavior. *International Journal of Hospitality Management*, 31, 180-190.
- 13) European Commission. (2014). *The Digital Competence Framework*. https://joint-research-centre.ec.europa.eu/digcomp/digital-competence-framework_en
- 14) Firnanda, D. Y., and Wijayati, D. T. (2021). Pengaruh Perceived Organizational Support, Self Efficacy dan Lingkungan Kerja terhadap Employee Engagement Karyawan PT. Pesona Arnos Beton. *Jurnal Ilmu Manajemen*, 9(3), 1076-1091.
- 15) Gaynor. (2018). *Innovation by design*. New York: American Management Association.
- 16) Ghufron, M.N., and Risnawita, S. (2019). *Theories of Psychology*. Yogyakarta: Ar-Ruzz Media. 2010.
- 17) Ghozali, I. (2014) *Model Persamaan Struktural: Konsep & Aplikasi Dengan Program Amos 16.0*, Badan Penerbit Universitas Diponegoro, Semarang.
- 18) Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152. DOI: 10.2753.
- 19) Hasibuan, M.S.P. (2017). *Human Resource Management*. Revised Edition. Jakarta: Bumi Aksara.
- 20) Hoseini, S.A., Mahdiuon, R., and Alishahi, A. G. (2020). The role of Digital Literacy and Core Competencies of teachers on their Job Performance. *Sciences and Techniques of Information Management*. Volume 6: 17-42. <https://dx.doi.org/10.22091/stim.2020.3857.1277>
- 21) Hobbs, R. (2010). *Digital and Media Literacy. A Plan of Action*. The Aspen Institute.
- 22) Kadi, A.P.U. (2016). The Relationship of Self-Confidence and Self-Regulated Learning to Academic Procrastination in Psychology Students 2013. *Journal of Psychology*, 14 (4), 457-471.
- 23) Kahveci, P. (2021) Language teachers' digital literacy and self-efficacy: Are they related? *ELT Research Journal*, 10(2), 123-139.
- 24) Karim, M. R., Masud, N. A., Subarna, M. T. N., Billah, M. M., and Wiennaah, P. (2021). Self-efficacy: A key component of teacher effectiveness. *Asian Journal of Education and Social Studies*, 25(1), 24-34.
- 25) Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture and Society*, 33(2), 211-221. <https://doi.org/10.1177/0163443710393382>
- 26) Machmud, S. (2018). The Influence of Self-Efficacy on Satisfaction and Work-Related Performance. *International Journal of Management Science and Business Administration* Volume 4, Issue 4, May 2018, Pages 43-47. DOI: 10.18775/ijmsba.1849-5664-5419.2014.44.1005
- 27) Magistra, S., Santosa, S., and Indriayu, M. (2021). Effect of Self-Efficacy and Technostress on Teacher Performance through Organizational Commitments. *Dinamika Pendidikan*, 16(1), 75-82. DOI:<https://doi.org/10.15294/dp.v16i1.28993>,

Model of Digital Literacy and Organizational Support in Determining Teacher Performance: An Empirical Study

- 28) Moharrami, A., Mahdiun, R., Alishahi, A.G., and Razzaghi, M. (2020). The Role of Digital Literacy and Organizational Learning Capacity on Job Performance of Teaching Employees. *Iranian Journal of Information Management*. Volume 6, Issue 1 - Serial Number 10: 201-222. <https://dx.doi.org/10.22034/aimj.2020.125499>
- 29) Mete, M., Zincirkiran, M., & Tiftik, H. (2014). Relationship between employees' perceptions of organizational support and their self-efficacy: A research in the logistics sector. *International Journal of Management, IT and Engineering*, 4(5), 328.
- 30) Nusannas, I. S., Yuniarsih, T., Sojanah, J., Mutmainnah, D., and Imbari, S. (2020). The Effect of Self Efficacy and Employee Engagement on Employee Performance in Mediation by Digital Literacy. *Enrichment: Journal of Management*. 11(1), 63-67.
- 31) Permadi, D., Shabrina, F., and Rahyaputra. V. (2018). Welcoming Indonesian Digital Entrepreneurship Gajah Mada University Press.
- 32) Prior, D.D., Mazanov, J., Meacheam, D., Heaslip, G., and Hanson, J.M. (2016) Attitude, digital literacy, and self-efficacy: Flow-on effects for online learning behavior. *Internet High. Educ.*, 29, 91-97.
- 33) Purwaningtyas, E., & Septyarini, E. (2021). Pengaruh Stres Kerja dan Persepsi Dukungan Organisasi Terhadap Produktivitas Karyawan yang di Mediasi oleh Self-Efficacy (Studi Pada Karyawan My Creative. Id Yogyakarta). *J-MAS (Jurnal Manajemen dan Sains)*, 6(1), 226-231.
- 34) Rahmizal, M., and Dewi, R. S. (2022). The Effect of Self-Efficacy and Job Satisfaction on Employee Performance in Employees Education and Culture Office South Coast District. *Bina Bangsa International Journal Of Business And Management*, 2(1), 68-78. <https://doi.org/10.46306/bbijbm.v2i1.42>
- 35) Rhoades, L, and Eisenberger, R. (2012). Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, 87, 698-714.
- 36) Riantoko, R., Sudibya, G., and Sintaasih, D. (2017). The Effect of Organizational Support on Work Motivation and Performance of Members of North Kuta Police. *E-Journal of Economics and Business, Udayana University*.
- 37) Sedarmayanti. (2009). Human Resources and Work Productivity. Jakarta: Maju Mundur.
- 38) Shabbir, T., Naz, K., and Trivedi, S. D. (2021). Perceived Organizational Support and Employee Performance: A Moderating Role of Organizational Justice during COVID-19. *International Journal of Educational Administration, Management, and Leadership*, 2(1), 35-44. <https://doi.org/10.51629/ijeamal.v2i1.14>
- 39) Sharma, J., and Dhar, R. L. (2016). Factors influencing job performance of nursing staff: mediating role of affective commitment. *Personnel Review*, 45(1), 161-182.
- 40) Sihag, P., and Sarikwal, L. (2015). Effect of perceived organizational support on a psychological capital-A study of IT industries in Indian framework. *Electronic Journal of Business Ethics and Organization Studies*, 20(2), 19-26.
- 41) Siregar, M. C. R., Akhmad, B. A., Rahmawati, E. (2022). The Effect of Job Satisfaction and Self-Efficacy on Job Performance in Employees of PT Tanjung Baru South Kalimantan. *Journal of Business and Development*, January-July 2022 Edition Vol 11, No. 1, ISSN 2541-1403, E-ISSN 2541-187X
- 42) Sutrisno, E. (2012). Human Resource Management. 1st Edition. Fourth Printing. Prenada Media Group. Jakarta
- 43) Turay, A.K., Salamah, S., and Riani, A.L. (2019). The Effect of Leadership Style, Self-Efficacy and Employee Training on Employee Performance at the Sierra Leone Airport Authority. *International Journal of Multicultural and Multireligious Understanding*. Volume 6, Issue 2 Pages: 760-769. <http://dx.doi.org/10.18415/ijmmu.v6i2.766>
- 44) Law of the Republic of Indonesia Number 14 of 2005, on Teachers and Lecturers. State Secretariat. Jakarta.
- 45) Weny, W., Siahaan, R. F., Anggraini, D., and Sulaiman, F. (2021). The Effect of Perceived Organizational Support on Employee Performance. *Enrichment: Journal of Management*, 12(1), 321-324. <https://doi.org/10.35335/enrichment.v12i1.224>
- 46) Wijaya, N. and Ie, M. (2021). The Effect of Perceived Organizational Support on Performance at Mcdonald in West Jakarta: Job Satisfaction and Work Engagement as Mediating Variables. *Journal of Managerial and Entrepreneurship*. 3. 196. 10.24912/jmk.v3i1.11305.
- 47) Wordu, H. and Okwu, F and Dike, C. (2021). Digital Literacy and Teachers Job Performance in Universities in Rivers State, Nigeria. *International Journal of Innovative Social and Science Education Research* 9(2):112-119.



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Methodology Supported by ICT to Contribute to the Development of Language Competence in the Process of Learning English as a Foreign Language at the Pre-University Level



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SUMMARY: The general objective of the study is to develop a methodology with the integration of technology for the development of linguistic competence in the learning process of the English language, as a foreign language at the pre-university level of the Dominican educational system, and thus positively influence compliance. of the objectives foreseen in the curricular design (linguistic level B2)

For the fulfillment of the proposed objectives, the various scientific methods of theoretical, empirical and statistical-mathematical research are used. For data collection, two questionnaires addressed to teachers were used to publicize the methodologies that are implemented for the development of linguistic skills in the teaching of English as a foreign language at pre-university levels, generating a scientific contribution for its contribution and improvement. .

The results obtained from the research indicate a group satisfaction index by teachers of 0.9, thanks to the strategies and their impact on the development of linguistic skills as a foreign language, taking advantage of the influence of families. Likewise, a favorable rating was obtained in the activity plan for teacher training. On the other hand, the application of focus group techniques in which the methodological conceptions and the teacher training plan are considered. Finally, recommendations are made for the strengthening of these activities and at the same time, collaborate to continue with the effectiveness of the strategies in linguistic competences.

INTRODUCTION

This chapter refers to an overview of the methodological conception that has been followed in the development of the research process. As a medium, technology provides unique ways to organize and integrate different types of sensory information and generate possibilities, which influences the development of new linguistic communication skills and therefore the creation of methodologies that take into account the characteristics of these media, advances in the field of language learning theories and approaches, and the specific environments in which the teaching-learning process takes place. In this research work, a methodology with the integration of technology is proposed to develop the linguistic skills of the English language aimed at students at the pre-university level of the Liceo Morayma Veloz de Báez educational center.

LICEO MORAYMA VELOZ DE BÁEZ EDUCATIONAL CENTER

The Educational Center Prof., Morayma Veloz De Báez is specifically located in the municipality of Bayaguana, in the sector called Puerta Blanca. The educational center is public and has a medium-low socioeconomic stratum, it was founded in 1980 and has a faculty of 30 teachers and 20 people for teaching and administrative support, it also has a student enrollment of 800 students. This center covers grades from 1st to 4th grade. high school Since 1998 the center has taught English as a foreign language at all levels.

OBJECTIVES OF THE INSTITUTION

- Promote the cultivation and practice of values, especially self-discipline, respect and love of nature, through the convergent action of the entire community.

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- Develop the linguistic skills of the English language at a B1 level.
- Strengthen the interest in research as an essential requirement to fulfill tasks and self-educate throughout life.
- Promote the development of critical, creative and friendly thinking.
- Create the conditions for the members of the educational community to communicate and interact.
- Develop the skills required by the secondary level.

The faculty is made up of education professionals, all graduates

Table 1. List of staff working at the Moray V. de Baez Lyceum

Secondary Education (Baccalaureate)	teachers	Not Teachers	directors	Total
	28	4	4	36
Total	28	4	4	36

Source: Annual Center Project

GENERAL DESCRIPTION OF THE METHODOLOGY

In a very general way, it is proposed that methodology is what links theory with practice. According to the 2016 Grand Dictionary of the Spanish Language, Larousse Editorial, SL, defines methodology as an organizational system, a set of methods or organizational principles that underlie the arts, sciences or a particular area of study.

Niño (2011) points out that in Research Methodology, such a term is used to designate the outline, scheme, prototype or model that indicates the decisions, steps and activities to be carried out to carry out an investigation.

Puerta (2011) conceives it as the general strategy that the researcher assumes to respond to the problem posed.

Sabino (2007) defines it as a theoretical-practical model through which we confront theoretical approaches with empirical facts.

Tamayo (2001) points out that this implies a structure to follow in the investigation, on which the necessary controls have been exercised in order to find reliable results and also determine their relationship with the questions arising from the assumptions and hypotheses and from the issue.

Hernández (1991) for whom it means that the strategy is conceived with the purpose of giving answers to the research questions or to confirm or not the hypotheses raised.

If you refer to the Dictionary of the Royal Spanish Academy, Methodology is defined as: Science of the method. Set of methods that are followed in a scientific investigation or in a doctrinal exposition. And referring to Method as: the set of ordered steps.

These theories are linked to the design characteristics of the teaching-learning process in foreign languages (objectives, contents, types of activities, role of the teacher, role of the students, teaching materials, etc.). The characteristics of the instructional design are linked in turn with the teaching-learning practices in specific teaching-learning environments. This complex of interrelated elements defines a language teaching methodology.

In this regard, the Common European Framework of Reference for Languages states that "...when a foreign language is learned, the linguistic and cultural competences with respect to each language are modified through knowledge of the other language and contribute to creating an awareness , skills and intercultural capacities. They allow the individual to develop a richer and more complex personality, and improve the capacity for subsequent language learning and openness to new cultural experiences" (Council of Europe, 2002, p. 47).

To **speak** , the student must know how to plan and organize a message, formulate a linguistic statement and articulate a statement.

To **write** , the student must know how to organize and formulate the message and write the text. To **listen** , the student must know how to perceive the statement, identify the message, understand the message and interpret the message. To **read** , the student must be able to perceive the written text, recognize the writing, identify the message, understand the message and interpret the message".

essence of technology integration is learning, and technology is a means of supporting the teaching process. Technology is only the vehicle for pedagogy in the body of a software, therefore, the conception that supports the design of the software is what allows any device to perform its interactive role.

Generally, in the teaching-learning of foreign languages, the appearance of new media has brought with it the development of new methodologies (e-books and e-dictionaries- grammar-translation method; radios and recorders- audio-lingual method; television that integrated audio and visual aspects - communicative approaches, suggestopedia, approaches through Tasks etc.).

Methodology Supported by ICT to Contribute to the Development of Language Competence in the Process of Learning English as a Foreign Language at the Pre-University Level

The objective of this research is the elaboration of a methodology that is supported by technology for the development of linguistic competences in the English language learning process, aimed at pre-university students of the Morayma Veloz de Baez public educational center in Bayaguana. It is considered an integrating methodology because it takes into account the following characteristics in its conception:

- Elective focus on the theoretical foundation.
- Design and adaptation of didactic materials that include, with different degrees of depth, the components of communicative competence for its development at different levels.
- Mixed learning environment that integrates communication tools, teaching materials with a high level of interactivity, a Virtual Resource Center to support the development of a teaching-learning process with specific objectives, with face-to-face activities that address the different components of communicative competence.
- Integration of skills and development of the different components of communicative competence.

A first level that integrates three central axes : a theoretical conception with a communicative approach that contemplates elements of the historical-cultural approach, the Theory of Assimilation of a Second Language and Language Learning supported by Communication and Information Technologies integration and from which the general characteristics that the English language learning process must have with integration to technology are defined and the essential characteristics of the English language class are modeled through them; a process of **evaluation, selection and classification of resources and teaching materials** that will be made available to students for the development of language skills and as a third axis the structuring of **the learning environment** in which the learning process will be carried out through the use of these technologies. For the implementation of the experimental phase of this methodology, the intersection between synchrony and ICT was used, focused on face-to-face educational environments with the support of multimedia materials. In the general application of the project, a semi-face-to-face course (**COLIMPI ENGLISH CLASS**) will be used, which will be planned through the GoogleClassroom platform. The second level of integration of the methodology is how these three axes are applied in a COLIMPI ENGLISH CLASS course through GoogleClassroom designed with specific objectives and that takes into account all the elements designed in the first level of integration.

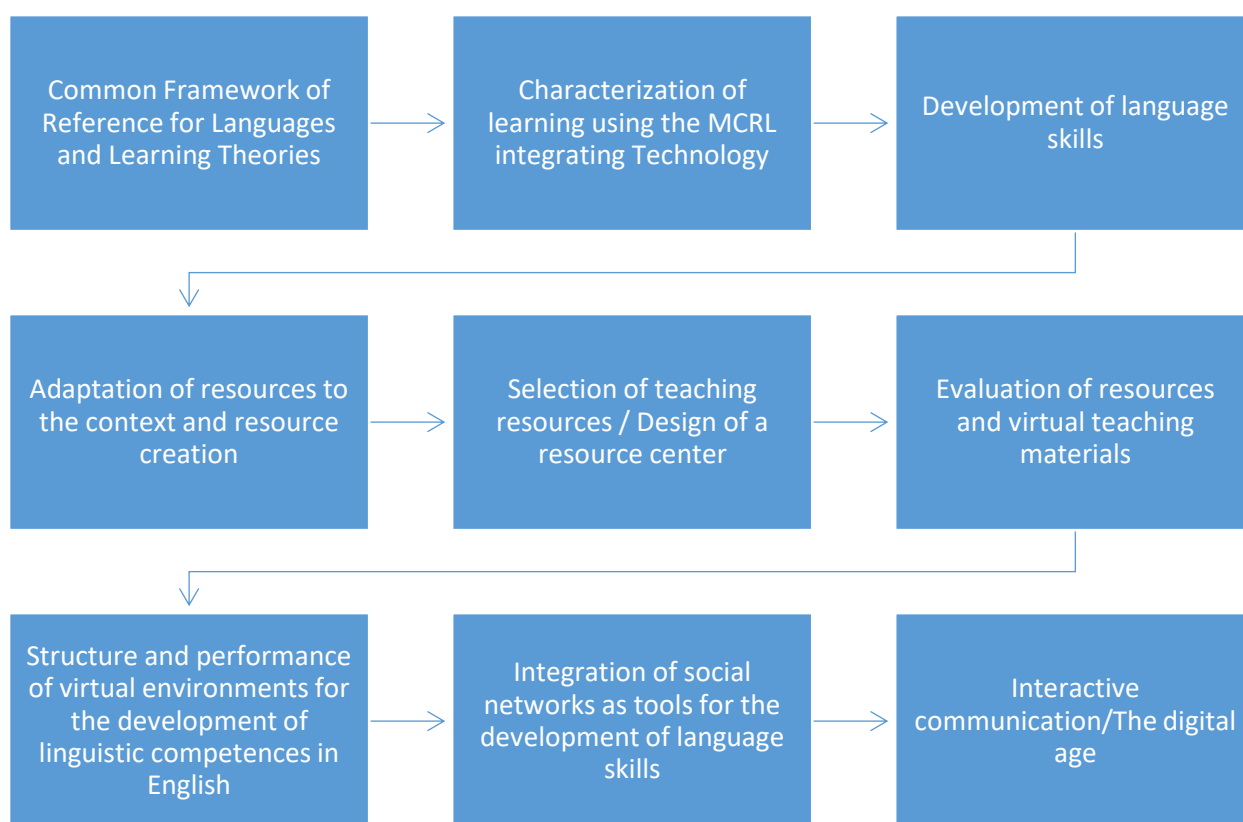


Figure 2.1. General outline of the methodology adapted from Morayma Veloz de Báez

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Characterization of the Development of English Language Skills using *Olimpi English Class* through *Googlegclassroom*

The expectation of new conventions for the teaching of English as a foreign language has grown in recent decades, however for the Dominican Republic these changes in the public education sector have not been very significant, since it has not had a merely scientific approach. nor socio-cultural, for this reason reaching a point where the teaching methodology can meet the needs of our students is one of the main goals of this project, and one of the ways to achieve a significant improvement in the teaching methodology for the development of language skills is the implementation of technology focused on the use of the Web as a source of information, collaboration, interaction and communication in students and their environment, both educational and social.

The Horizon 2017 report, as in previous years, identifies six key trends, six significant challenges, and six important developments in educational technology. This corresponds to the fundamental objective of this research, which takes into account the characteristics of institutionalized learning, interaction between a subject who learns and his environment, by which the knowledge and skills of that subject are modified and with it the ability to perform tasks and non-institutionalized learning where there is no guide who teaches; on the contrary, the learner uses his observations and his will to access knowledge (Johnson et al., 2017).

COLIMPI ENGLISH CLASS It is designed from the *Googlegclassroom platform*, which is a free access platform, which makes it easier for the student to make it available, as well as for the teacher to plan classes through this tool, as well as promoting collaboration between students, facilitating the communication with the teacher. This methodology favors the simultaneous interaction of several agents in the teaching-learning process, and places the teacher as a monitor of the students, letting them learn on their own with the sole monitoring of the teachers. It also offers a very flexible training for the students since they will not only work in the classroom, but also work from home in collaboration with the other students.

To carry out communicative tasks, students of English as a foreign language (EFL) have to carry out activities of a communicative nature and put into operation communication strategies. Many communicative activities, such as conversation and correspondence, are interactive, that is, the participants alternate as producers and receivers. In other cases, such as when speech is recorded or broadcast or when texts are sent for publication, the senders are remote from the receivers, whom they may not even know and who cannot respond to them. That is, the communicative act can be considered as the act of speaking, writing, listening or reading a text.

Practice opportunities depend on the task system used in the teaching-learning process. The greater the students' participation in the communicative interaction that the task fosters, the better the opportunities they will have for practice in a communicative class.

Opportunities for student receptivity are increased if the atmosphere provides a suitable environment for a sense of progress and effectiveness in learning, emotional security and personal growth, high self-esteem, a positive orientation towards the language studied, and adequate motivation to learn. . The class must be a model of cognition for the student and its effectiveness depends a lot on whether the reality of the cognitive processes that are developed in the student is recognized. There are three recognized phases in the cognitive act, these are: "approach to the problem", "action on the problem" and "reflection on the problem". The result of the cognitive act leads to the formation of knowledge, skills and experiences and values. Every class of English as a foreign language pursues the same structure in a foreign language, that is, it follows the universal scheme of any cognitive activity, which consists of three steps:

- 1) Introduction (to motivate learning)
- 2) Core Activity (to organize learning)
- 3) Conclusion (*follow-up*, to motivate more learning)

Structure of a Modern English Class

In the proposed methodology, the structure of the English class is assumed in three moments. This type of structure allows the development of linguistic competence in the student, which is put into operation with the performance of different language activities. involving **understanding**, expression , interaction , or **mediation** (specifically, interpreting or translating). Each of these types of activities is made possible in relation to texts in oral or written form, or both. As processes, **comprehension** and **expression** (oral and, where appropriate, written) are obviously primary, since both are necessary for interaction.

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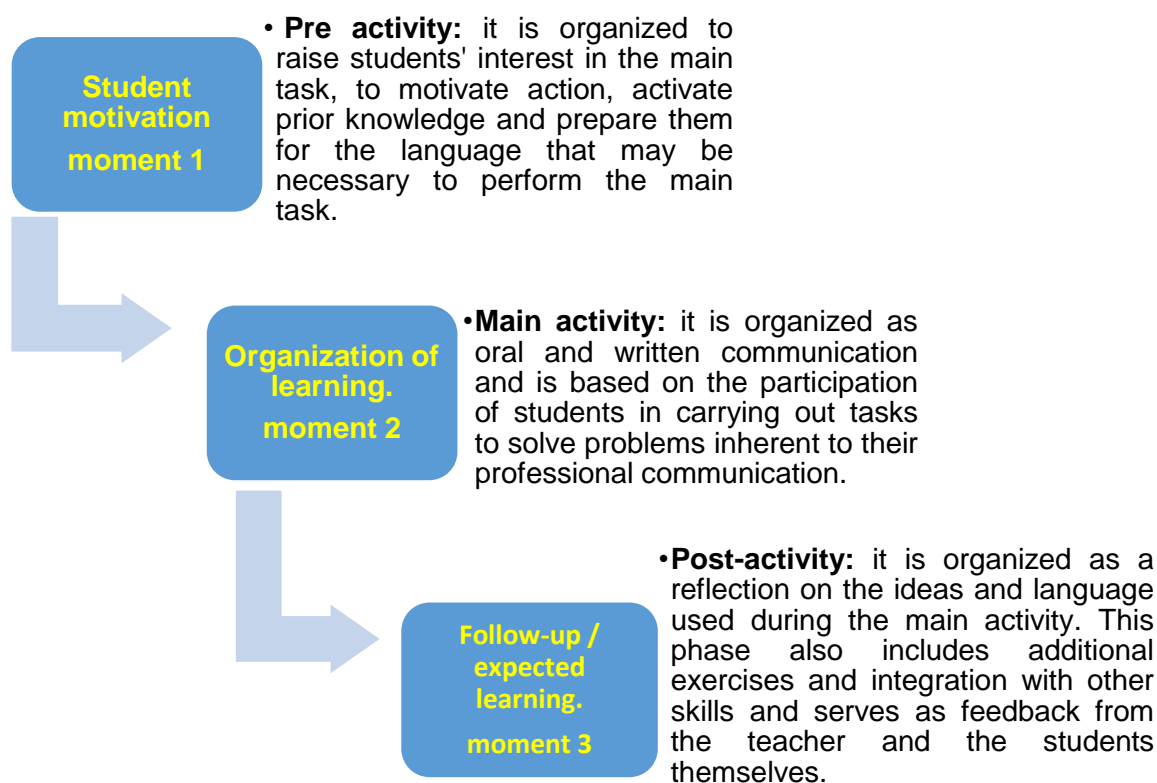


Figure 2.2. Moments in which the English class is organized

This type of structure allows the development of linguistic competence in the student, which is put into operation with the performance of different language activities. involving **understanding**, expression , interaction , or **mediation** (specifically, interpreting or translating). Each of these types of activities is made possible in relation to texts in oral or written form, or both. As processes, **comprehension** and **expression** (oral and, where appropriate, written) are obviously primary, since both are necessary for interaction.

Use of this structure includes silent reading and attention to the media. They are also important in many forms of learning (understanding the content of a course and consulting manuals, reference works and documents). Expression activities play an important role in many academic and professional fields (oral presentations, studies and written reports) and are given a certain social value (the assessments made of what has been presented in writing or of the fluency in the articulation of oral presentations).

The teaching service through the network can be carried out through the different *asynchronous communication tools* (v.gr. email, discussion forum and FAQ) and *synchronous* (v.gr. chat, videoconference and digital whiteboard) that the platforms of *E-learning* usually incorporate. Among the former, e-mail stands out, as it is the most widespread means of tutoring over the Internet. The arrival of Web 3.0 in the Dominican Republic brought with it new methodological training needs for teachers in the public education system, including the commitment to a pedagogical model based on a student-centered teaching-learning paradigm and the that teachers change their role to become cognitive companions, going from being a transmitter of knowledge to a facilitator of it. In this way, the functions of the teacher are adjusted to the new needs and potentialities around him and where he ceases to be seen as the main source of information, since now all this information is easily accessible through Web 2.0. Thus, in this new model, students cease to be mere receivers of content to play an active role in the teaching-learning process, participating, collaborating, exchanging experiences with their classmates and building their own knowledge (García, 2016).

Evaluation of the Teaching Resources Available on the Web

The evolution of the Web demands the continuous advancement of skills in students and the flexibility of educational institutions to respond to new trends, coming from lifelong learning (*LifeLongLearning; LLL*). *Web 2.0 favors access to lifelong learning, but* the integration contained in the proposed methodology, as a result of research, focused on the development of linguistic skills in

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English as a foreign language, contemplates new ways of organizing the entry and treatment to learning objects and contents, as well as the adaptation of teachers to their use in teaching .

The incorporation of information and communication technologies into educational practices has caused controversies about the technological skills that teachers must achieve in the different training processes, especially due to the need to use, apply and produce resources for the web. Web 2.0 offers the teaching of English as a foreign language possibilities in the design and implementation of teaching-learning proposals as an integral part of education, which implies the adoption of new teaching methodologies that seek to enhance the cognitive development of students. and language skills.

Technology has historically affected education and affects more every day. Personalized learning and its universalization as great challenges of educational transformation, as well as the satisfaction of learning in non-cognitive skills, the acquisition of attitudes and learning by doing, demand the intensive use of technologies.

Within the context of teaching second languages, it is also important to mention that despite the fact that this is currently the underlying proposition in relation to the development of communication skills, teaching practice is conditioned by several factors such as: the "methodology of the book " that is used in classes because it is the safest way for the teacher not to move away from the contents of the study program, the nature of the exams, the teaching working conditions and the administrative factors, especially those related to time and the number of English hours (Córdoba, 2011).

In order to adequately and effectively introduce Web 2.0 in the educational field, the methods and strategies that structure the teaching-learning process must be modified, since they cannot continue to respond to the traditional expository approach. The teacher must play a role as facilitator of learning and the students must take a more active role (García, 2016). But the evaluation and the choice made of the digital tools and materials to be used in the classroom must also be modified. Given this need, e-rubrics were designed and adapted to assess the quality and suitability of digital educational resources, and at the same time offer them the opportunity to discover the didactic possibilities offered by this type of tool as a means of evaluation. . Teaching resources and materials are crucial in any computerized learning system. There are different types of resources: texts, video and audio clips, interactive simulations, software of different types and with different objectives, among others, each of which serves as a means through which the acquisition of knowledge or the development of skills is carried out. skills. In general, all the media that facilitate the process in an integral way are assumed as resources and didactic materials in this research, with common functions such as being a valuable vehicle for learning, a support for the development of learning strategies and for the elevation of student motivation (Cabero, 1990)

The evaluation of teaching resources and materials is especially important in the teaching-learning process of English as a foreign language, since there is an avalanche of resources and materials on the Internet with very different levels of quality and pedagogical design.

The quality of teaching resources and materials depends on many factors that have to be taken into consideration, such as:

- Informative and training content (tasks with operational objectives, grouping by skills, levels and thematic areas).
- Level of adaptation to the contents, skills and learning objectives.
- Language adequacy level, publication style.
- Organization of text, graphics, multimedia and elements of interaction between them.
- Authorship data, updating, grammatical and spelling correction.
- Quality of the audiovisual environment.

Evaluating the resources from this initial perspective allowed, in the present investigation, a more inclusive evaluation from the pedagogical and technological point of view of the resources.

Pedagogical Point of View

Based on pedagogical criteria, the evaluation of the resources aims to facilitate the choice of content that can be used in the classroom.

- Materials or resources that can be used directly in the multimedia classroom, without the need for editing or prior preparation.
- The materials can be used with some type of support from the teacher, such as, for example, the preparation of a glossary, the use of brief extracts, among others.
- Only usable by the teacher as a source of materials, since the content needs to be edited and adapted to the level of learning.
- Meta-pedagogical material for teachers of English as a foreign language.

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- Sources of extracurricular information, usable by teachers and students in the framework of tasks and projects. The teaching-learning process includes three main areas:
- **Contents:** extension, structure and depth, vocabulary, grammatical structures, examples, simulations and graphics. The contents must be significant for the students and be related to learning situations and problems of interest to them.
- **Activities :** type of interaction, duration, motivational elements, error correction and help messages, levels of difficulty, itineraries, progression and depth of the contents according to the learning carried out (pre-exams to determine the initial knowledge of the users).
- **Communication environment:** screens, navigation system, navigation map.

Technological Point of View

From the technological point of view, the evaluation of resources is given by their **effectiveness** in facilitating the achievement of learning objectives, taking into account various functional and technical aspects.

- **Ease of use and installation.** In order for the resources to be really usable, they need to be nice, easy to use and self-explanatory, so that users can use them immediately without having to read the manuals exhaustively or take long prior configuration tasks. An online **help system** will solve any doubts that may arise.
- **Versatility** (adaptation to various contexts). Another good feature of the resources, from the perspective of their functionality, is that they can be easily integrated with other teaching aids in the different training contexts.

The rubrics have normally been used as instruments and techniques for evaluation, and although as a methodology they have been applied for various objectives, levels and teaching modalities, their most widespread use has turned out to be directed towards evaluation by competencies (Montero & Cebrián, 2014), it should be noted that for the creation of educational rubrics there are dozens of applications that facilitate the creation of these in this case we use a rubric developed by the Complutense University of Madrid, which aims to evaluate and validate the digital tools used to enhance the teaching methodology for the development of the linguistic competences of the English language as a foreign language.

All these requirements are applied during the implementation process in the experimental phase, which are used with the greatest rigor, so that the application of the model yields the expected results through the *COLIMPI ENGLISH CLASS blended course*, in order to be able to determine the results and verify the viability and the innovations that this project would contribute to the public education system of the Dominican Republic. It is noteworthy that the integration of new technologies into the educational system in the teaching-learning process is of great interest to the Ministry of Education of the Dominican Republic, for the promotion of technological and scientific knowledge as established in the General Education Law 66 -97, as well as in the ten-year education plan 2008-2018 (Ministerio de Educación de la República Dominicana, 2013). Therefore, it is certain that this research will have a great impact on education in the 21st century in the Dominican Republic. Teaching resources and materials are crucial in any learning system. In fact, most of the interaction between the student and the Web, as well as the actual learning experience, takes place through these resources.

Not all teaching materials found in virtual environments for the language teaching-learning process take into account all the agents involved in the training process and have the requirements to interact in an environment of this type (hypermedia materials with possibility of different learning itineraries, consideration of learning styles and rhythms). For this reason, it is convenient to adapt to the context and design the resources that are required for the development of linguistic competences, attending to the needs of the student. That is to say, there must be a coherence of the materials with the teaching action that will be carried out, with the functionality of the environment and with the relationships that can be triggered in it. The most difficult thing is to properly use the possibilities offered by didactic materials and telematic tools to achieve a more significant learning than traditional didactic materials can facilitate.

Organization and Classification of Resources

The organization and classification of resources and teaching materials for the English language teaching-learning process that are scattered on the Internet in a CVR simplifies search tasks with the consequent saving of time for teachers and students, allowing access to the themselves through google classroom or intranet.

The Virtual Resource Center was configured as a space on the network specially designed to offer students and teachers the greatest facilities to know and use the available resources and the production of others, facilitating interaction and collaborative work. It also provides information services and facilities for collaborative work, resource management and exchange between them.

The work that is done with the resources in it includes:

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- The evaluation and validation of the resources that currently exist on the network through research and debate on each of them.
- The registration, classification, cataloging and ordering of resources.
- The selection of resources according to the needs and characteristics of the institution and users.
- The evaluation of the effectiveness of the resources used and the production of didactic materials.

In the classification of teaching resources and materials in the CVR, the following criteria were taken into account:

- **Contents** (the different speech acts that a foreign language contemplates)
- **Recipients** (criteria considered in the linguistic levels of the Common Framework of Reference for Languages, previous knowledge).
- **Structure** : tutorial (linear, both closed or open), database, simulator, tool.
- **Media that integrates** : conventional, hypertext, multimedia, hypermedia, virtual reality.
- **Educational objectives**: general, for specific purposes, for education, science and technology).
- **Socio-cognitive activities** that it activates: observation, memorization, evocation, understanding, interpretation, comparison, relationship (classification, ordering), analysis, synthesis, reasoning (deductive, inductive, critical), divergent thinking, imagination, problem solving, expression (verbal, written, graphic...), creation, exploration, experimentation, metacognitive reflection, assessment.
- **Type of interaction** that it fosters: cognitive, reconstructive, intuitive/global, constructive.
- **Error handling** : tutorial (controls the student's work and corrects it), non-tutorial.
- **Psycho-pedagogical bases** of learning: behaviorist, constructivist, cognitivist, socio-cognitivist.
- **Function in the didactic strategy** : train, instruct, inform, motivate, explore, experiment, express, communicate, entertain, evaluate.
- **Design**: learning-focused, teaching-focused.

The **descriptors** selected to facilitate the search and management of resources were the following:

Format Descriptors: Software, Video, PowerPoint Presentation, Image, Web Page, Word Document, PDF Document, Audio (Sound files: mp3, wav, midi).

Skill Descriptors: Reading, Writing, Listening, Speaking, Translation, Mixed.

Level descriptors : Beginner, Intermediate, Superior, Advanced.

Methodology descriptors: approaches, teaching-learning theories, methods, styles, strategies.

Language component descriptors : Grammar, Vocabulary, Pronunciation, Phonetics and Phonology, Stylistics.

Thematic descriptors: Didactics, History of the English language, English as a global language, Lesson plans, Evaluation, Playful literature, Humour, Songs, Virtual reality games.

This research provides a wide and updated selection of websites for learning the English language with the description of its main characteristics to facilitate the work of teachers when selecting and providing resources.

Adaptation, Design of Teaching Materials and Configuration of the Teaching-Learning Environment

Many of the didactic materials found on the Internet cannot be used directly in the classroom, as they are not always adapted to the technological environment in which they are going to be used, to the specific learning objectives of the students to whom they are directed, or to a pre-established theoretical and methodological conception.

Not all teaching materials found in virtual environments for language teaching take into account all the agents involved in the training process and do not always have the requirements to interact in an environment of this type (materials with the possibility of different learning itineraries, consideration of learning styles and rhythms).

That is to say, there must be a coherence of the materials with the teaching action that will be carried out, with the functionality of the environment and with the relationships that can be triggered in it. The most difficult thing is to properly use the possibilities offered by didactic materials and telematic tools to achieve more significant learning than traditional didactic materials can facilitate. Below is a table with advantages and disadvantages of learning in that century.

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Table 2.1. Characteristics of traditional training Vs training based on communication and information technologies

Traditional Training	Training based on ICT
Part of a knowledge base and the student must adjust to it.	Allow students to go at their own pace of learning.
Teachers determine when and how students will receive instructional materials.	It is a training based on the concept of <i>training at the time it is needed (just-in-time training)</i> .
It starts from the basis that the subject passively receives knowledge to generate innovative, critical and investigative attitudes.	It allows the combination of different materials (auditory, visual and audiovisual).
It tends to rely on printed materials and the teacher as a source for presenting and structuring information.	With a single application, a greater number of students can be served.
Tends to a linear model of communication.	Knowledge is an active process of construction.
Communication basically takes place between the teacher and the student.	It tends to reduce the training time of people.
Teaching takes place preferably in groups.	It tends to be interactive, both between the participants in the process (teacher and students) and with the content.
You can prepare to develop in a time and place.	It tends to be carried out individually, without this meaning the renunciation of collaborative proposals.
It takes place at a fixed time and in specific classrooms.	It can be used in the workplace and in the time available by the student.
Tends to temporary stiffness.	It is flexible.
We have a lot of experience in its use.	There is little experience in its use.
We have many structural and organizational resources for its implementation.	We do not always have the structural and organizational resources to put it into operation.

Font: Own elaboration, based on publications by Cabero and Llorente (2013).

This methodology proposes the use of a mixed teaching-learning environment for the development of the linguistic competence of students at the pre-university level. Mixed in the sense that a virtual learning environment such as googleclassroom is integrated with the preparation of activities both online and face-to-face for the development of certain skills that are not yet achieved with the support of technology.

The incorporation of laptops and tablets as the main technological resource and the communication processes established through it allow the creation of so-called virtual teaching-learning environments.

"A virtual learning environment is made up of the means to drive or transport teaching resources and a communication strategy that allows the student-teacher and student-student relationship. The design of a learning environment on the Web is a task that goes beyond the creation of learning materials for a specific objective, since it is supported by an infrastructure to direct resources and sustain communication processes". (McLoughlin, 1998)

"A Virtual Learning Environment (EVA) is a symbolic-educational representation, based on network technology and Web support, which includes various information presentation tools, allows synchronous and asynchronous interrelation, between all components of the community educational". (Rodríguez-Ardura, 2001) "A virtual teaching/learning environment (EVE/A) is a set of computer and telematic facilities for communication and information exchange in which teaching/learning processes are developed. In an EVE /A interact, mainly teachers and students". (Gisbert and others, 1998).

EVA Characteristics

- Communicative learning environment. There is a clear consensus among researchers in this field regarding the contribution that telematic tools provide to produce communication between students based on joint work in the development of communicative tasks, focusing them more on the development of fluency and spontaneous language than on correctness or knowledge of grammatical form.
- Interactivity, which allows dialogic communication between students, between students and the teacher or tutor, as well as student-computer interaction.
- Diversity of ways to access, manipulate information and take control of the learning process becoming active participants in it.

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- Variety in the types of information displayed and in the types of interaction in which the student communicates with the system.
- Multimedia presentation of teaching materials that allows combining textual, graphic, image, animation and video representation as integrated elements that develop a skill or theme.
- Flexibility, expressive capacity and non-sequentiality in the selection and presentation of content.

It was decided to use a Web environment because it allowed the integration of tools and the development of teaching materials so that any teacher can use it without having great programming knowledge.

The Pedagogical Space

- Learning content: Multimedia content from hypertext structures. The content of the course was generated using *DreamWeaver* as the main authoring tool and using selected teaching materials in the Resource Center and in general from materials that are freely accessible on the Internet. The course was prepared as an independent unit with integrated communication tools, but in the event that there is a manager, its content can be used using the evaluation possibilities and the tools that integrate it. There is a balance between textual information and the use of other resources such as audio, video and sound, with ample possibilities for interaction within the course content itself.
- Evaluation: Diagnostic and formative evaluation tools were used, so that the student receives immediate feedback and can guide the students' activity within the learning environment.
- Communication: The communication facilities operate at several levels: one-on-one communications in personal consultations with the teacher to clarify doubts and in communications between students; one-to-many communications through readings, exercise statements, general recommendations, among others, and many-to-many communications in debates, simulations, brainstorming, among others.
- Learning monitoring: Facility built in the environment that allows the teacher to monitor the course of the student's activity in the learning material and that reports the student's performance in the environment in general.

In the field of synchronous communication tools for a foreign language such as English, there are chats, where students and the teacher can establish tutorial schedules in a "virtual room" of the course, intended for this purpose, and simultaneously exchange messages (written or sound, depending on the available equipment) that help in resolving doubts, problems, among others. The videoconference requires adapting the curricular contents to the medium; know information presentation strategies; develop and use teaching support materials and make use of appropriate teaching strategies in this environment. According to experts, preparing a class via videoconference takes three times more time than a traditional class. Both tools can be complemented with the use of the digital whiteboard, shared screens that are very useful for making demonstrations, exemplifying theories, illustrating processes, among others, with the possibility that the teacher and student can simultaneously write their contributions and discuss topics that they consider to be of interest. (Berrocoso & Del Carmen, 2008).

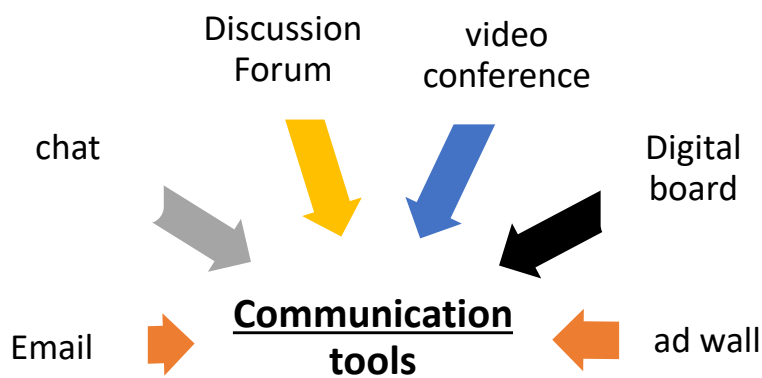


Figure 2.3. Proposal of communication tools that contemplates the methodology methodology

Another asynchronous communication tool is the discussion forum. Both the teacher and the students can send messages to the forum to make queries, clarify doubts that are either addressed to anyone in general in the course who reads the message, students, teachers, other classmates, etc., or You can specify in the message to whom the question or query is addressed. They

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constitute the ideal environment for participation in work activities, for carrying out collaborative learning activities in which each one exposes their ideas, gives their opinion, criticizes or listens to the contributions of others (Berrocso & Del Carmen, 2008).

COLIMPI ENGLISHCLASS

semi-classroom course for the development of the linguistic competence of the English language of the students of the pre-university level

The design of the COLIMPI course is based on the theoretical conception assumed in the research that allowed the definition of the general characteristics of the teaching-learning process and of the class-type of English as a primary didactic unit, of the selection of resources and materials using *GOOGLE CLASSROOM* as a platform. This is a free educational platform where teachers and students can interact virtually, helps teachers quickly create and organize assignments, make comments efficiently, and easily communicate with their class students, who can also do their jobs virtually. It integrates Google Docs, Drive, and Gmail to help teachers create and collect paperless assignments. Also provide direct feedback in real time to each of the students.

The fundamental elements of the didactic design of the course are:

- The general objective and the specific objectives of the course.
- The space-time dimensions (modality).
- The organizational and didactic structure.
- The design and presentation of the content (system of face-to-face and online learning activities).
- The evaluation system.
- The paradigm of communication and interaction.

The **general objective** of the course is the development of the linguistic competences of the students of the pre-university level from A1 which is the lowest linguistic level to the B2 level which is the upper intermediate level of the Common Framework of Reference for Languages MRCL using technology as a tool to support learning.

The **specific objectives** of the course are aimed at students being able to:

- Understand the global and specific information of oral and written messages in the English language in the context of situations generated from multimedia resources and computer networks.
- Apply techniques to achieve a successful communication of ideas, providing information for a variety of authentic objectives, with an adequate selection of vocabulary and grammatical structures.
- Analyze, synthesize and evaluate the different types of reading materials to perform various tasks related to the professional profile through logical and critical cognitive strategies.
- Produce written messages in the various situations that are created in real life and through technology
- Reflect on the functioning of the linguistic system in communication, with real speakers (as is often the case with new technologies),
- Use autonomous learning strategies and reflect on their own learning processes.
- Develop learning autonomy impossible to achieve in the context of the traditional class, in which all students perform the same task simultaneously.
- Perform group tasks sharing the use of the same computer or through telematic communication tools.
- Access to diverse materials that constitute sources of information and exposure to authentic language that allow knowing different cultures and ways of life.
- Maintain a critical attitude towards the information accessed through networks.

The course has a modular structure . A modular structure was selected because it allows a better organization of the contents and the integration of the communication tools in it. The course integrates modules for each of the basic skills (listening, reading, writing and speaking) with a thematic module related to the professional profile of the students and that integrates all the skills. A support module was also added with grammatical materials, glossaries and dictionaries and a module for exercises and complementary practice. Access to the CVR and the communication tools is done directly from any module or activity that is being developed in it. The module was conceived as the organizational structure and basic didactic unit of the course. Although in each module emphasis is placed on the development of speech acts and the communicative functions of a foreign language, these are developed interrelated with the others in the task system.

The module as a basic didactic unit in the course has the following structure:

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The lessons are structured in such a way that there is a balance between communicative functions and grammatical and lexical forms, providing a complete input (*comprehensible input*), so that the level of challenge is always a little beyond the capacities of the students. The skills are developed within the framework of the three phases of the cognitive act: pre-activity, activity, post-activity.

The evaluation system in each module is carried out as follows:

- An online entry exam to find out the starting level of the skill or topic that will be covered in it.
- A final online exam to assess the achievement of the objective reached in the development of the skill or specific topic of the module.
- A system of face-to-face and online activities, which can be individual or group, and which combine the use of telematic communication tools (chat, forum, email and CVR), which are designed according to the specific objectives of each module to control and evaluate the evolution of the student's zone of proximal development and of which an evaluative control is carried out.
- An integrating face-to-face activity, which requires both the use of the knowledge and the skills developed in the module through role plays, debates or round tables, etc. and where communication tools are used in the preparation and analysis phases of activities.

Organization and presentation of content

The course is developed entirely in English to maximize the benefits to the student. Grammar and vocabulary are taught in the context of performing authentic listening, reading, writing, and speaking tasks. Technology is used as a tool to develop and strengthen communicative language skills in English as a foreign language.

Each of the modules is developed from the consideration of the following methodological and didactic principles:

Listening Comprehension Hearing Module

Hearing as a communicative skill . Listening activities develop in the student the ability to listen in contexts as close as possible to those of the real world, as well as to use these skills to receive information from the speech heard.

Listening to Authentic Materials . The speech for the listening activities is "authentic", that is, produced by native speakers; or produced by native speakers for teaching purposes but with all the features of natural speech in English.

Hearing as an integrated skill. Audition is rarely done for the sole purpose of listening. Generally people listen and talk, listen and read, listen and write. This is how it integrates with other communication skills.

Activities for Listening Development in the Course

Listening exercises : repeated listening with spaces to complete the heard text, click on vocabulary or grammatical structures used in the text, listen and do, draw, mark, dramatize, answer questions, infer from the text, sequence the order of the speakers, listening and matching (texts, graphs and drawings), filling in gaps in the text (closeprocedure), completing outlines, charts, selecting true or false sentences, predicting the continuation of the text, commenting on the text with personal associations, reasoning, selecting details, transferring information to a table or graph, etc.

Pre-audition activities: These are preparation activities for the audition. They can be varied tasks: the teacher offers some general information, the students can read something relevant to the audition, discuss a related topic, answer questions, write about the topic, consider the language that will be used, among others.

Audition Activities: Refers to what the students do during the audition. The goal is to help students develop the ability to extract information while listening to the text. Other tasks can be: listen to the text and decide which image represents the story, listen and complete a table, listen and select the items not mentioned from a list, listen and mark the sentences that follow the text as true or false, listen and fill in the blanks in the text, correct the printed version of the text, among others.

Post-audition activities: They are done after the audition process is complete. The most common form is the comprehension check. Another objective is to know the reason for the incomprehension of the text heard. It is also used to expand knowledge about the subject or the language of the text heard.

Oral Expression Module

Oral expression as an interactive, meaningful and informational activity: Speech is the ability to send oral messages as an integral part of oral conversation.

Teaching of the different genres of speech. There are different genres of oral conversation (typical forms of oral performance in typical settings with highly predictable characteristics): description (telling details to an active interlocutor), narration (telling the development of facts or events), reasoning (telling the development of one's own thought), identification (talking about tastes

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and preferences), language-in-action (doing things and talking), comments (opinions and points of view), service encounters (buying and selling products and services), debate and discussion (search for solutions and defense of personal points of view), learning (use of language in learning) and decision making (working on the selection of appropriate decisions).

Activities for teaching oral expression: They are organized in a framework of three phases:

Oral pre-expression: Activation of schemes and language, motivation of the speaker, preparation of the idea.

Oral expression: role plays, problem solving, storytelling, games, socializing.

Post-speaking: Reflection on the activity, emphasis on language, emphasis on ideas, integrated skills.

The pre-speaking activity is used to prepare students for the core activity. Schema activation is the use of students' prior knowledge about the topic that is relevant to the main activity. Questions, images and texts can be used for this purpose. Brainstorms are held to generate ideas in groups before the main activity. Motivation increases when the communicative problem and the ways to solve it are clear.

In the activity **during oral expression**, students solve the communicative problem and produce in the language as a result of role plays, problem solving, socialization and communicative games.

Post-speech activity provides opportunities for students to analyze the language and ideas produced, as well as ways to make communication more effective. An important part of the post-speaking activity is the development of integrated communication skills, for example, reading-speaking, listening-speaking, speaking-writing tasks, etc.

communicative exercises

For oral expression, they are organized as information transfer (extracting certain information from non-verbal forms, for example a table, a map, a graph). Another type of exercise is the completion of information (the information is directed from the person who has it to the person who lacks it) and can be in the form of a puzzle (each student has only a part of the information that is part of a whole and which must be united through oral communication).

reading module

Reading is a visual cognitive process to extract information from writing through the understanding of the written text, the processing of information and the establishment of a relationship with the existing experience.

Reading can be text-directed (the text is interesting), **task -directed (the text is read** because of the academic task facing the student), and goal-directed (the text is a step toward a goal that is out of bounds) . of the reading).

Activities for teaching reading

Pre-reading: Schema activation, motivation creation, language preparation.

Reading: Text completion, sequence of events, restoration, search for relevant and irrelevant information, matching tasks, among others.

Post-reading: Extraction of information, summaries, sharing of information.

Exercises for teaching reading: extraction (extracting information from the text by answering questions or other deduction tasks), completion procedures (filling in spaces in the text), sequencing of parts of the text (restoring the logical order of a jumbled text), match (headings or passages in the text), text restoration (restoring the text from fragments), find irrelevancies (find and delete sentences that are logically irrelevant in the text), summarize (summarize essential information from the text or several texts), comment (reader response to the text).

Writing Module

Writing is a communicative skill to send, store and retrieve information with the help of written symbols.

The process of teaching writing includes "familiarization with similar writings", "creating written discourse" and "the possibility of sharing written texts in the group".

Activities for teaching writing

Pre-writing: Activation of schemes, motivation for writing, preparation for the language, familiarization with the format of the text to be written.

Writing: Write from notes, conclude with a given sentence, write from a sentence or piece of writing, follow a plan, follow a format or record, write to state how to solve a problem.

Post-writing: Reflection on spelling and reasoning errors, possibility of sharing what is written with the group, editing with tutoring.

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2.15 Activities for teaching reading

Pre-reading: Schema activation, motivation creation, language preparation.

Reading: Text completion, sequence of events, restoration, search for relevant and irrelevant information, matching tasks, etc.

Post-reading: Extraction of information, summaries, sharing of information.

Exercises for teaching reading: extraction (extracting information from the text by answering questions or other deduction tasks), completion procedures (filling in spaces in the text), sequencing of parts of the text (restoring the logical order of a jumbled text), match (headings or passages in the text), text restoration (restoring the text from fragments), find irrelevancies (find and delete sentences that are logically irrelevant in the text), summarize (summarize essential information from the text or several texts), comment (reader response to the text).

INTERACTION AND COMMUNICATION PARADIGM

In the course, the resources allow the establishment of a participatory-communicative action, providing ample options for access to information and great simplicity in the ways of communicating interactively with the content, with the teacher and with the rest of the group.

1) The teacher selects and presents the materials, organizes the online and face-to-face activities

- ✓ Design the course content: class systems, help systems.
- ✓ Design, apply and grade exams and surveys (optional feedback).
- ✓ Select complementary materials in the CVR for the development of the activities.
- ✓ Match the online discussions to the activity topics in the lessons.

2) Students interact with the materials

- ✓ They search the content or index pages of the course.
- ✓ They consult glossaries.
- ✓ They conduct exams and interactive exercises.
- ✓ They visit external references in the CVR.
- ✓ They carry out all the interactive activities designed in the classes within the course.

3) The teacher receives the answers from the students

- ✓ Via email
- ✓ In the chat room
- ✓ In the discussion forum

4) Students interact with other students and with the teacher

- ✓ They participate in the Discussion Forum and Chat Room on selected topics.
- ✓ They read the messages of their classmates and the teacher.
- ✓ They carry out information searches in the CVR in work teams.
- ✓ They share and build resources for group presentations through the group work tools in the CVR.
- ✓ Summarize authentic information in preparation for individual and group face-to-face activities.
- ✓ They take on a different personality.

5) The teacher monitors and evaluates collaborative activities.

- ✓ Post and read messages in the Discussion Forum and Chat Room.
- ✓ Makes language corrections in all messages received through communication tools.
- ✓ Suggest supplementary materials and assignments in the CVR according to the individual difficulties of the students.
- ✓ Monitor or moderate the discussions in the integrative face-to-face activities, the chat and the forum.
- ✓ Controls (tracking) the activities developed by the students in the course (number and quality of interactions produced through participation in the forum and chat, development of activities in the lessons).
- ✓ Print chat and forum reports and correct them.

GENERAL ENVIRONMENT OF THE COURSE

In general, the course environment was designed in a friendly way that allowed students to :

- Know the general elements of the program of the subject English as a foreign language B2: description, objectives, content (system of knowledge and skills), methodology, structure or index, evaluation system, calendar.

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- Know any other information of interest for the development of the course
- Know your level of initial development of skills (diagnostic tests).
- Communicate with the professor for doubts and suggestions about the course.
- Engage with other students to share and discuss ideas and learning tasks in pairs or groups.
- Have access to supplemental materials or links to resources available outside of the course.
- Save your coursework and assignments in your personal or group folder, as well as post your work for other students and the teacher to see.
- Ask and find answers to your questions and concerns in the course.

In the course teachers can

- Access student folders to view their work.
- Publish information or links of interest to students.
- Communicate and interact synchronously or asynchronously with all students in the course to answer questions and offer assistance.
- Follow the student's performance throughout the course to assess the development of their communicative competence and their general participation.
- Define the entry level of students to the course.
- Answer the most frequently asked questions by students about the course.
- Communicate synchronously or asynchronously with all students.
- Evaluate the execution of the tasks in the modules.



Figure 2.3. General scheme of the methodology for the development of linguistic competence in the process of learning English as a foreign language with the integration of technology

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➤ Aspects on the functioning of the methodology

- ✓ **Overcome differences in access.** For the purpose of forming a community and for the purpose of effective collaboration it is very important that students have access as similar as possible to the shared conversation. Students who make contact online later than others are faced with an established community where they find it more difficult to engage in ongoing learning experiences. It would be better for everyone to start together.
- ✓ **Overcome the conflicts of the debates.** Since the groups that are formed can be very heterogeneous, the first priority should be to build a sense of community through carefully structured exercises in which the starting differences between the students are not so obvious.
- ✓ **Organize exercises ranging from highly structured to more open.** It is advisable to offer maximum structure and support at the beginning of the educational experience, to gradually move towards greater freedom and student-centered learning at the end of the course.
- ✓ **Allow time for reflection at the end.** It is advisable to dedicate a specific period of time, for example at the end of the course (it could be the last week), for a discussion of what has been learned and how it has been learned. This period could also provide feedback on the effectiveness of different aspects of the course.
- ✓ **Discussion.** Provide an environment for social interaction in which people feel at home. The main difficulties in the development of these experiences occur in the field of the social dimension. This does not mean that other factors, such as software design or access, are less important, but their effect on course success is mediated by the social process of forming and supporting a collaborative learning community.
- ✓ **Guarantee** the use of technology for learning, knowledge, empowerment, and participation.

THE VIRTUAL ENVIRONMENT IN THE ENGLISH LANGUAGE LEARNING PROCESS

Generating, analyzing and understanding the configurations of environments for online teaching and learning necessarily implies recognizing their enormous intrinsic complexity, associated with the range of uses of these technologies, their diversity and the heterogeneity of criteria used to describe and classify them. (Sánchez & Coll, 2010).

As elements that are taken into account in the virtual environment, based on the work of Sánchez & Coll (2010), they are:

- 1) The preparation of the technological resources to be used: computers, computer networks, information support and format, platforms, content management systems, virtual classrooms, institutional repository, among others.
- 2) The use of educational tools and resources such as: multimedia materials, videoconferencing, simulations, electronic boards, email, mailing lists, newsgroups, instant messaging, among others.
- 3) The synchronous or asynchronous nature of the interactions.
- 4) Keep in mind the educational aims and objectives that are pursued and the conceptions of learning and teaching on which they are based.

It can be seen that teachers are increasingly advancing in the process of integrating new technologies in their classes, but this progress is sporadic, gradual and unstructured. They find it difficult to determine a finished format that brings together the characteristics and advantages of blended learning. In the Dominican Republic, specifically in the public education sector, a blended learning modality, also known as blended learning, has not been implemented, or blended learning, fundamentally due to teachers' weaknesses in working in this environment, the lack of adequate educational resources for work, and the existence of few tools to guide work in the aforementioned educational modality.

With the insertion of ICTs in training processes, the teaching activity begins to become more technical, however face-to-face practices in virtual environments also began to be reproduced, even teachers sometimes limited ICTs only to the use of computers and the Internet in the classroom. classroom, without proposing a change in roles, skills or expectations of the training process (Caicedo, Alzate, & Avello, 2014)

That is why the use of ICT in education does not necessarily promote the development of skills, learning or knowledge; This is only achieved if there is a didactic and pedagogical orientation that guides the work of teachers and students in the development of the educational teaching process with the support of ICT. For this reason, in the present investigation, a methodology based on ICT is developed to contribute to the development of linguistic competence in the process of learning English as a foreign language at the pre- university level .

According to Marín, Vázquez, Llorente and Cabero (2012), Learning and Knowledge Technologies (**TAC**) are introduced as a redirection of ICT that focuses more on **training** than on information, on **knowledge** as a result of training processes. collaborative,

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in virtual environments that facilitate the sharing of materials and feedback in the learning process (Marín, Vázquez, Llorente, & Cabero, 2012).

With the appearance of TACs, important improvements are achieved in virtual education platforms, in educational resources and in learning objects, which contributes to improving the quality of the teaching processes that are offered with the use of technologies (Pinto, Díaz, & Alfaro, 2016). This helps that the uses given to technology are not only to ensure mastery of a series of computer tools.

ICTs and TACs are complemented by empowerment and participation technologies (TEP), which are technologies that facilitate collaboration in an environment of interaction, reflection and joint construction of learning (Vidal, Martínez, Nolla, & Vialart, 2015). With TEPs, knowledge is contextualized, which makes it adapt to the training needs of the participants. The author of this research has taken into account this evolution in the proposed methodology for the transition from ICT to TAC, and from these to TEP, which makes it necessary to adequately prepare teachers to have greater skills to better use technology and educational materials to better prepare students

Therefore, the configuration of the virtual environment is a topic of high priority for this research since it helps the development of the relationship between students, teachers, teaching materials and the strategies used for the development of the teaching-learning process of the language. English as a foreign language, as well as the enhancement of linguistic skills in the area. For this, it is essential to prepare teachers in the use of Web 2.0 so that they can offer their students learning opportunities supported by Web 2.0, to use them and to know how they can help student learning.

Educational environments configured from ICT can be analyzed by crossing two axes related to the distinctions between synchronous and asynchronous (Coll, 2010), on the one hand, and between information technologies and communication technologies.

CONCLUSIONS

- The realization of transformations in the educational teaching process, which includes changes in the pedagogical conceptions and the educational practices that are proposed as a result of the developed research, are basic in the use of technology for the development of linguistic competences in the English language from early ages
- The integration of technology in the proposal is specified in a methodology that achieves an interaction between the specific didactics in the teaching-learning process of the English language in pre-university, ICT and modern techniques of management and use of information and knowledge.
- The teaching methodology oriented to the teaching of the English language in pre-university corresponds to the current trends offered by the scientific literature, which constitutes a high priority for pre-university education in the Dominican Republic.
- The proposed methodology constitutes an important instrument to guide teachers in their preparation, because as it was verified in the investigation there are many deficiencies in this sense, with which they will be better prepared to develop linguistic competences in pre-university students, which is essential. . The plan of activities proposed in chapter 3 responds to this need.

REFERENCES

- 1) Caicedo, S., Alzate, S., & Avello, R. (2014). Teachers' conceptions about the relationship: ICT-learning in the framework of the program computers to educate "region 2". *University and Society Magazine [serial online]* , 4 , 63-68.
- 2) Marin, V., Vazquez, A., Llorente, M., & Cabero, J. (2012). *Digital literacy of university teachers in the European Higher Education Area*. . Retrieved from Edutec, Electronic Journal of Educational Technology, 39.: http://edutec.rediris.es/Revelec2/Revelec39/alphabetizacion_digital_docente_universitario_EEES.html
- 3) Vidal, M., Martínez, G., Nolla, N., & Vialart, M. (2015). Personal learning environments. *Higher Medical Education* , 29 (4).
- 4) Pinto, A., Díaz, J., & Alfaro, C. (2016). Spiral Model of TICTACTEP Teaching Competencies applied to the Development of Digital Competencies. *Hekademos Educational Magazine* , 19 , 39-48.
- 5) Klauda, S.L., y Guthrie, J.T. (2015). Comparing relations of motivation, engagement, and achievement among struggling and advanced adolescent readers.
- 6) Reading and Writing. doi:10.1007/s11145-014-9523-2 7) Language and Reading Research Consortium. (2015). Learning to read: Should we keep things simple? *Reading Research Quarterly*, 50, 151-169. 8)
- 7) Santa Cabrera July 2019 , Contraste Curricular Niveles de Dominio prueba PISA y el currículo Dominicano: Desarrollo de competencias lingüística en EFL

Methodology Supported by ICT to Contribute to the Development of Language Competence in the Process of Learning English as a Foreign Language at the Pre-University Level

- 8) A linguistic ethnographic analysis. *Journal of Pragmatics*, 43, 3832-3843. Dobs, A. M., Blitvich, P. G. C. (2013) 11) Impoliteness in polylogal interaction:
- 9) Accounting for face-threat witnesses" responses. *Journal of Pragmatics*, 53, 112- 130. Dumitrescu, D., & Andueza, P. L. (Eds.). (2018). *L2 Spanish pragmatics: From research to teaching*. New York, NY: Routledge. Edwards, J. 2010. *Language 12*) eidlhofer, B. (2005). English as a lingua franca. In *Oxford Advanced Learner's Dictionary* (7th Ed., p. R92). Oxford, England: Oxford University Press.



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The Effect of Academic Supervision of School Principles and School Culture on the Performance of People Technicals



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ABSTRACT: This study aims to analyze: (1) The effect of the principal's academic supervision on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. (2) The influence of school culture on the performance of physical education teachers in public elementary schools throughout Sleman Regency. (3) The effect of the principal's academic supervision and culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. This type of research is quantitative with an ex post facto approach. The population in this study were Physical Education Teachers at State Elementary Schools throughout Sleman Regency. Researchers did not examine the entire population, but a representative sample was taken. Calculating the sample size using the 5% error rate formula, repeating 238 teachers. The instrument used is a questionnaire. The data analysis technique used ANOVA analysis. The results showed that (1) There was a significant effect between the principal's academic supervision on the performance of teachers in public elementary schools throughout Sleman Regency, with a significance value of $0.000 < 0.05$. (2) There is a significant influence between school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency, with a significance value of $0.000 < 0.05$. (3) There is a significant effect between the principal's academic supervision and culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency, with a value of sig. $0.000 < 0.05$.

KEYWORDS: principal's academic supervision, school culture, physical education teacher performance

INTRODUCTION

The teacher is one of the human components in the teaching and learning process, which plays a role in efforts to establish potential human resources in the field of development. One of the interesting aspects to be studied from the figure of a teacher is the aspect of performance because teacher performance is the most important input in the implementation of the education (Nadeem et al., 2011). Performance is very important in determining the quality of a person's work, including a teacher's. The main task of a teacher who becomes a routine is to educate, teach, guide, direct, evaluate, train, and administer in order to develop the abilities of students (Naydenova & Naydenova, 2016). This means that teacher performance directly affects the quality of education in each country (Nousiainen et al., 2018).

One of the factors that affect teacher performance is the supervision of the principal. The principal as the direct leader of the school, of course, is very aware of the actual situation and condition of the school. Leaders who carry out leadership effectively and have good relationships with their subordinates encourage their subordinates to set and achieve organizational goals effectively and efficiently (Solihati & Agustin, 2020). Effective leaders give meaning and relevance to the tasks carried out using their leadership style (Luyten & Bazo, 2019). In addition, the principal also knows the strengths and weaknesses of the teachers.

Effective leadership makes it easier for teachers to manage classes, learn and manage students more optimally (Cheng & Szeto, 2016). However, effective leadership in order to better influence teacher performance must be supported by teacher commitment and a conducive work environment. As an effective leader, he has the ability to influence the activities of a person or group in an effort to achieve goals in certain situations (Al-Mahdy et al., 2018). Therefore, the principal is obliged to supervise the teachers in his school without exception.

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The principal as a supervisor has the responsibility to improve the ability of teachers in managing learning activities in schools and has a very important role in the development and progress of the school (Khasanah & Kristiawan, n.d.); (Renata et al., 2018); (Murtiningsih et al., 2019). The results of Lyonga (2018) that the dominant aspect that affects teacher performance during instructional supervision by the principal is not only class visits but also teaching observations by 83%, where the principal holds sessions with teachers to guide them on how to improve teaching and learning activities. The better the supervision of the principal, the better the performance of the teacher.

In addition to influencing, teacher performance is school culture. A conducive school culture can affect the performance of teachers in schools. Schools that have a good school culture in terms of the educational environment, values adopted, heroism, certain ceremonies or special activities adopted, and a good network will provide good teacher performance as well. Each school has its own rules, which are a series of values, norms, moral rules, and habits that have shaped the behavior and relationships that occur within the school environment. School culture needs to be viewed as a shared way of understanding policy and practice, as an alternative to decisions based on policy options, and as a basis for education reform. Ahmad et al., (2019) stated that school culture is a set of characteristics that distinguish one school from another and influence the behavior of school residents. School culture has an effect not only on the activities of school residents but also on achievement, motivation, and shaping the character of students (Alemán et al., 2017). The results of this study are in line with the research (Ghanney, 2020); and (Romy et al., 2021) that there is a significant influence between school culture on teacher performance. Dahlan, et al., (2018) added that "there is a positive and significant influence of school culture on teacher performance".

The explanation above is certainly interesting to study and research more deeply, so this study aims to analyze: (1) The effect of the principal's academic supervision on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. (2) The influence of school culture on the performance of physical education teachers in public elementary schools throughout Sleman Regency. (3) The effect of the principal's academic supervision and school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency.

METHOD

This type of research is descriptive quantitative with an ex post facto approach. Ex post facto is research that aims to find the causes that allow changes in behavior, symptoms or phenomena caused by an event, behavior or things that cause changes in the independent variables which as a whole have occurred. The population in this study were Physical Education Teachers at State Elementary Schools throughout Sleman Regency. Researchers did not examine the entire population, but a representative sample was taken. Calculating the sample size using the Slovin formula with an error rate of 5%, totaling 238 teachers. The instrument used is a questionnaire. The statements are composed of two component items, namely favourable (positive statements) and unfavorable. The research instrument grid is in table 1.

Table 1. Instrument Grid

Variable	Indicator	Item Number	
		Favorable	Unfavorable
Supervision Academic Principal	Planning	2, 3, 5, 6, 9, 10	1, 4, 7, 8
	Implementation	11, 12, 14, 15, 17	13, 16
	Follow-up	18, 22, 23, 24, 26	19, 20, 21, 25
School culture	Values of school and individual activities	1, 3, 6, 7, 9, 11	17, 5, 4, 8, 10, 2
	Confidence that develops in the midst of the school community	13, 15	14, 16
	Cultural Artifacts	2, 19	18, 20
Teacher Performance	Lesson Planning	1, 3, 4, 9, 10, 11	2, 5, 6, 7, 8
	Learning Implementation	12, 14, 16, 17, 19, 21, 22, 24	13, 15, 18, 20, 23
	Learning Evaluation	26, 28, 30	25, 27, 29

The data analysis technique used is a prerequisite test which consists of a normality test, linearity test, and multicollinearity test, while hypothesis testing uses partial and simultaneous tests. Analysis was performed using SPSS 23.

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FINDING

The results of the descriptive analysis are intended to determine the respondents' responses to the variables of the principal's academic supervision, school culture, and teacher performance based on the results of filling out the questionnaire. The statistical descriptive results based on the full mean and standard deviation are in Table 2.

Table 2. Descriptive Statistics

No	Variable	Statistic
1	Principal Academic Supervision	75.76±7.61
2	School Culture	55,52±6.63
3	Teacher Performance	90.05±10.93

The normality test of the data in this study used the Kolmogorov-Smirnov method. The results of the data normality test carried out in each group were analyzed using the SPSS version 20.0 software program for windows with a significance level of 5% or 0.05. The summary of the data is presented in Table 3.

Table 3. Normality Test Results

No	Variable	p	Sig	Description
1	Principal Academic Supervision	0.233	0.05	Normal
2	School Culture	0.361	0.05	Normal
3	Teacher Performance	0.455	0.05	Normal

Based on the statistical analysis of the normality test that has been carried out using the Kolmogorov-Smirnov test in Table 6, the principal's academic supervision variable and school culture on the performance of education and physical education teachers obtained normality test results with a significance value of $p > 0.05$, which means the data is normally distributed. The linearity test of the relationship was carried out through the F test. The relationship between the independent variable (X) and the dependent variable (Y) was declared linear if the sig value > 0.05 . The results of the linearity test can be seen in Table 4.

Table 4. Linearity Test Results

No	Functional Relationship	p	Sig.	Description
1	Principal Academic Supervision * Physical Education Teacher Performance	0.478	0.05	Linier
2	School Culture * Physical Education Teacher Performance	0.343	0.05	Linier

Based on the results of the analysis in Table 4 above, it can be seen that the relationship between the principal's academic supervision and the performance of Physical Education teachers with a significance value of $0.478 > 0.05$ and the relationship between school culture and the performance of Physical Education teachers with a significance value of $0.343 > 0.05$ is declared linear.

The multicollinearity test uses the Variance Inflation Factor (VIF) value in the regression model, if $(VIF) > 10$, then the variable has problems with other independent variables. The results of the multicollinearity test can be seen in Table 5.

Table 5. Multicollinearity Test Results

No	Variable	Tolerance	VIF
1	Principal Academic Supervision	0.701	1.426
2	School Culture	0.701	1.426

Based on Table 5 above, the variance inflation factor (VIF) value, the Principal Academic Supervision variable (X_1) = 1.426 and School Culture (X_2) = 1.426. The two independent variables have a VIF value of less than 10, so it can be concluded that there is no multicollinearity between independent variables.

Furthermore, hypothesis analysis is performed, namely partial test and simultaneous test. The t-test (partial) was conducted to determine the effect of each independent variable, namely the principal's academic supervision and school culture on the

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performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. The results of the t-test analysis (partial) are presented in Table 6 as follows.

Table 6. Results of Partial Test Analysis (t test)

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig,
		B	Std. Error	Beta		
1	(Constant)	8.905	5.373		1.657	0.099
	Principal Academic Supervision	0.753	0.080	0.524	9.468	0.000
	School Culture	0.434	0.091	0.263	4.751	0.000
a. Dependent Variable: Teacher Performance						

The principal's academic supervision variable obtained a significance value (sig) of 0.000. Because the significance value is $0.000 < 0.05$, then H_0 is rejected, meaning that H_1 which reads "There is a significant influence between the principal's academic supervision on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency" is accepted. A positive value means that if the Principal's Academic Supervision is getting better, the teacher's performance will also be better.

The school culture variable obtained a significance value (sig) of 0.000. Because the significance value is $0.000 < 0.05$, then H_0 is rejected, meaning that H_2 which reads "There is a significant influence between school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency" is accepted. A positive value means that if the school culture is getting better, the teacher's performance will also be better.

The F test is used to test the hypothesis of whether the independent variables simultaneously (simultaneously) affect the dependent variable. H_3 reads "There is a significant influence between the principal's academic supervision and school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency". The results of the analysis are in Table 7.

Table 7. F Test Analysis Results (Simultaneous)

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig,
1	Regression	14019.612	2	7009.806	115.110	0.000 ^a
	Residual	14310.678	235	60.897		
	Total	28330.290	237			
a. Predictors: (Constant), School Culture, Principal Academic Supervision						
b. Dependent Variable: Physical Education Teacher Performance						

Based on Table 7 above, the calculated F coefficient is 115.110, and the value of sig. $0.000 < 0.05$, then H_0 is rejected, meaning. The alternative hypothesis which reads "There is a significant influence between the principal's academic supervision and school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency", is accepted.

The coefficient of determination is essentially used to measure how far the regression model's ability to explain the variation of the dependent variable is. The results of the analysis in Table 8 are as follows.

Table 8. Results of the Coefficient of Determination . Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.703 ^a	0.495	0.491	7.80362
Predictors: (Constant), School Culture, Principal Academic Supervision				

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The value of the coefficient of determination R Square or the principal's academic supervision and school culture in explaining or predicting the teacher performance variables at the Yogyakarta City Elementary School is 0.495 or 49.5%. This means that the principal's academic supervision variable and school culture have an influence on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency by 49.5%, while the rest is influenced by other factors of 50.5% outside this study. Other variables that influence such as supervision, motivation, and others.

DISCUSSION

The effect of principal's academic supervision on teacher performance

Based on the results of the study, showed that there was a significant influence between the principal's academic supervision on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. These results are in line with the research (Sherly et al., 2021); (Prasetyono et al., 2018); (Hoque et al., 2020); (Lyonga, 2018); (Yousaf et al., 2018); (Yusuf et al., 2020) which proves that there is an effect of principal supervision on teacher performance.

The influence of academic supervision on teacher performance is positive, it shows that the better the academic supervision, the better the teacher's performance, and vice versa, the lower the academic supervision, the less good the teacher's performance. Supervision is a professional effort of a supervisor in improving the learning situation organized by the teacher. The more intense and quality of supervision, the better the teacher's performance (Ampofo et al., 2019), (Darishah et al., 2017). Academic supervision will look real if the principal can encourage teacher performance to his subordinates to be willing, willing, and able to carry out all activities in order to achieve the school's vision, mission, and goals.

Supervision is an activity to help the task well. Supervision is guidance given to all school staff so that they can improve their ability to develop better teaching and learning situations. The principal as a supervisor is certainly inseparable from the organizational culture in the school itself, which means that teachers in carrying out professional duties in an organization always require action from supervisors so that through supervision the principal will be able to provide direction to teachers to be able to carry out their duties. which in turn can improve teacher performance.

A school principal must understand and carry out the supervisory function correctly and appropriately because the principal's supervision is very important to improve and improve the performance of a teacher. As a leader, the principal is a person who understands and masters effective managerial and supervision. Successful supervision is shown by the ability of the principal to carry out effective learning, form good leadership characters, develop staff, manage teaching staff, to be able to form responsive and anticipatory attitudes in school personnel, to be able to bring schools toward change for the better, be able to create a school environment. safe and orderly. The principal in his supervision must also be able to be open in leading and can motivate school personnel to excel.

Academic supervision empowers teachers professionally in carrying out their responsibilities as professionals, so that teacher performance in the learning process can be optimal and of high quality. With the academic supervision of quality, regular, and continuous school supervisors through the stages of planning, implementation, and evaluation, it is hoped that the function of academic supervision will be realized. The success of academic supervision can occur if all aspects function properly and do not exclude other objectives. Teacher performance is the behavior and ability of "teachers in carrying out tasks that produce an achievement that can be measured through the competencies that must be possessed by the teacher, namely" pedagogic competence, social competence, personality competence and professional competence that must be possessed by every teacher to carry out the teaching profession in support the learning process. Many things can affect teacher performance, in this study, it is seen that the academic supervision of school supervisors affects teacher performance.

The results of findings of this study indicate that the supervisory function in education is not just a control to see whether all activities have been carried out in accordance with the plans or programs that have been outlined, but more than that, namely increasing the ability and competence of teachers in carrying out teaching tasks. In addition, the supervision carried out by the principal is very necessary for the creation of an effective teaching and learning situation, and efforts to improve teacher teaching in the classroom.

The effect of school culture on teacher performance

Based on the results of the study, it shows that there is a significant influence between school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. In line with research ((Uçar & İpek, 2019); (Hosseinkhanzadeh et al., 2013); (Manuntun, 2019); (Bolat & Korkmaz, 2021); (Utami & Wedasuwari, 2019) prove that there is a significant influence between school culture on teacher performance.

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School culture provides a clear focus and purpose for the school, culture can be counterproductive and an obstacle to educational success; culture can also be oppressive and discriminatory for various subgroups within the school. Fundamental changes are taking place (eg changes in teaching practices or decision-making structures). School culture in general by saying that: the term school culture refers to beliefs, perceptions, relationships, attitudes, and written and unwritten rules that shape and influence every aspect of how schools function, but the term also includes more concrete issues such as the physical and emotional safety of students, the regularity of classrooms and public spaces, or the extent to which schools embrace and celebrate racial, ethnic, linguistic, or cultural diversity (Hasselquist et al., 2017).

School culture must be based on attitudes, values, norms, behaviors, and expectations. If all these elements have been formed, then behavior and expectations will tend to be stable, so that the atmosphere created will be more conducive. This atmosphere ultimately provides comfort for teachers in doing their work. The greater the value of school culture, the greater the value of teacher performance. In other words, the better the school culture, the higher the teacher's performance. If traced, a positive school culture in practice will foster teacher job satisfaction (Duan et al., 2018).

Culture in schools is a habit that has been developed or formed for a long time. A good culture will also have a good performance effect on teacher performance. Vice versa, a bad culture will result in teachers being uncomfortable and unable to bring out their potential, so that their performance gets worse. Organizational climate or organizational culture is a set of characteristics of the work environment that is felt by workers either directly or indirectly. This set of good work environments aims to improve the performance of the teachers themselves.

A conducive school culture can affect the performance of teachers in schools. School culture is a set of norms, values, traditions, and beliefs that are supported and characterize the school, support the work atmosphere and bring out positive values that become the habituation of teachers and students in positive behavior at school. Based on preliminary studies in several schools that are the object of research, there are still principals who have not been able to create a conducive school culture to improve teacher performance. This can be seen from the bad school culture, for example, teachers are not disciplined in terms of time, teachers arrive late at school, teachers leave before the appointed time, teachers do not obey the rules or obey only when the principal is there. This condition will certainly greatly affect the performance of teachers in schools.

The effect of principal's academic supervision and school culture on teacher performance

Based on the results of the study, shows that there is a significant influence between the principal's academic supervision and school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency. In line with research (Susanti et al., 2020); (Ulya et al., 2021); (Mutohar & Trisnantari, 2020); (Budiman & Saleh, 2020) shows that there is a positive and significant influence between principal leadership, educational supervision and school culture on teacher performance individually or together.

Organizational culture is a system of shared values, beliefs, and habits in an organization that interacts with its formal structure to obtain behavioral norms. Organizational culture also includes the values and standards that guide organizational behavior and determine the direction of the organization as a whole. With good organizational culture, teacher performance will also increase. Likewise, academic supervision is carried out by the principal. The importance of the teacher's role in learning, it is necessary to make efforts to improve teacher performance through the provision of guidance and encouragement from the principal.

The ability of the principal to carry out supervision is very important for the improvement of learning and educational services. Permendiknas Number 13 of 2007 concerning Standards for Principals states that a school principal is required to be able to manage all school potentials to function optimally. An effective and efficient leader is a leader who can understand the expertise of each of his subordinates. An understanding of the potential of each teacher will facilitate the principal in implementing policies and delegating tasks according to their respective abilities fairly and equitably. This will greatly support the creation of a comfortable and conducive school culture.

CONCLUSION

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that: (1) There is a significant influence between the principal's academic supervision on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency, with a significance value of $0.000 < 0,05$. (2) There is a significant influence between school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency, with a significance value of $0.000 < 0.05$. (3) There is a significant effect between the principal's academic

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supervision and school culture on the performance of Physical Education teachers in State Elementary Schools throughout Sleman Regency, with a value of sig. $0.000 < 0.05$.

Based on the conclusions of the research above, several suggestions can be submitted, namely: (1) The principal to continue to improve supervision, through supervision carried out by the head of the madrasa, the teacher will always receive good guidance, attention, and supervision from the principal, through supervision planning the principal, the implementation of the supervision of the principal and the follow-up carried out by the principal so that it is hoped that teachers will be able to improve their performance and further to achieve the expected learning objectives. (2) Principals should provide regular and structured academic supervision services to be able to encourage teachers to become more empowered, teaching and learning situations to be better, teaching to be effective, and teachers to be more satisfied in carrying out their work. (3) The principal should always provide an understanding of all components of the school to always maintain the traditions, and school values that characterize the school and strengthen a positive school culture, but what is more important is the culture for continuous improvement of school quality.

REFERENCES

- 1) Ahmad, A. R., Chew, F. P., Zulnaidi, H., & Sobri, K. M. (2019). Influence of School Culture and Classroom Environment in Improving Soft Skills amongst Secondary Schoolers. *International Journal of Instruction*, 12(2), 259–274.
- 2) Al-Mahdy, Y. E. H., Emam, M. M., & Hallinger, P. (2018). Assessing the contribution of principal instructional leadership and collective teacher efficacy to teacher commitment in Oman. *Teaching and Teacher Education*, 69, 191–201.
- 3) Alemán, E., Freire, J. A., McKinney, A., & Delgado Bernal, D. (2017). School–university–community pathways to higher education: Teacher perceptions, school culture and partnership building. *The Urban Review*, 49(5), 852–873.
- 4) Ampofo, S. Y., Onyango, G. A., & Ogola, M. (2019). Influence of School Heads' Direct Supervision on Teacher Role Performance in Public Senior High Schools, Central Region, Ghana. *IAFOR Journal of Education*, 7(2), 9–26.
- 5) Bolat, Y., & Korkmaz, C. (2021). Social Values and Life Skills as Predictors of Organizational Culture: A Study on Teachers. *Sage Open*, 11(2), 21582440211023180.
- 6) Budiman, I., & Saleh, M. (2020). The effect of school principal supervision, principal leadership, and teacher achievement motivation on the performance of public high school teachers in Barito Kuala regency. *Journal of K6 Education and Management*, 3(2), 158–167.
- 7) Cheng, A. Y. N., & Szeto, E. (2016). Teacher leadership development and principal facilitation: Novice teachers' perspectives. *Teaching and Teacher Education*, 58, 140–148.
- 8) Darishah, P., Daud, Y., & Omar Fauzee, M. S. (2017). Teaching and learning supervision by school management, attitude of teachers and competency of teaching. *International Journal of Development and Sustainability*, 6(10), 1367–1381.
- 9) Duan, X., Du, X., & Yu, K. (2018). School culture and school effectiveness: The mediating effect of teachers' job satisfaction. *International Journal of Learning, Teaching and Educational Research*, 17(5), 15–25.
- 10) Ghanney, R. A. (2020). Academic performance of basic school pupils in sand winning areas: the case of selected junior high schools in the Awutu-Senya West, Ghana. *European Journal of Social Sciences Studies*, 5(6).
- 11) Hasselquist, L., Herndon, K., & Kitchel, T. (2017). School Culture's Influence on Beginning Agriculture Teachers' Job Satisfaction and Teacher Self-Efficacy. *Journal of Agricultural Education*, 58(1), 267–279.
- 12) Hoque, K. E., Bt Kenayathulla, H. B., D/O Subramaniam, M. V., & Islam, R. (2020). Relationships between supervision and teachers' performance and attitude in secondary schools in Malaysia. *Sage Open*, 10(2), 2158244020925501.
- 13) Hosseinkhanzadeh, A. A., Hosseinkhanzadeh, A., & Yeganeh, T. (2013). Investigate relationship between job satisfaction and organizational culture among teachers. *Procedia-Social and Behavioral Sciences*, 84, 832–836.
- 14) Khasanah, U., & Kristiawan, M. (n.d.). Tobar. (2019). The implementation of principals' academic supervision in improving teachers' professionalism in the state primary schools. *International Journal of Scientific & Technology Research*, 8(8), 1107–1115.
- 15) Luyten, H., & Bazo, M. (2019). Transformational leadership, professional learning communities, teacher learning and learner centred teaching practices; Evidence on their interrelations in Mozambican primary education. *Studies in Educational Evaluation*, 60, 14–31.
- 16) Lyonga, N. A. N. (2018). Supervision and teachers' work performances in primary schools in Konye Sub-Division in Cameroon. *Journal of Educational and Social Research*, 8(2), 115.
- 17) Manuntun, T. (2019). The effect of organizational culture, achievement motivation and job satisfaction on the performance of teachers of smp negeri in north tapanuli. *4th Annual International Seminar on Transformative Education*

The Effect of Academic Supervision of School Principles and School Culture on the Performance of People Technicals

and Educational Leadership (AISTEEL 2019), 112–114.

- 18) Murtiningsih, M., Kristiawan, M., & Lian, B. (2019). The correlation between supervision of headmaster and interpersonal communication with work ethos of the teacher. *European Journal of Education Studies*.
- 19) Mutohar, P. M., & Trisnantari, H. E. (2020). The effectiveness of madrasah: Analysis of managerial skills, learning supervision, school culture, and teachers' performance. *MOJEM: Malaysian Online Journal of Educational Management*, 8(3), 21–47.
- 20) Nadeem, M., Rana, M. S., Lone, A. H., Maqbool, S., Naz, K., & Akhtar, A. (2011). Teacher's Competencies And Factors Affecting The Performance Of Female Teachers In Bahawalpur (Southern Punjab) Pakistan. *International Journal of Business and Social Science*, 2(19).
- 21) Naydenova, I. S., & Naydenova, N. N. (2016). Teacher's electronic portfolio in professional standard of teacher. *SHS Web of Conferences*, 29, 1052.
- 22) Nousiainen, T., Kangas, M., Rikala, J., & Vesisenaho, M. (2018). Teacher competencies in game-based pedagogy. *Teaching and Teacher Education*, 74, 85–97.
- 23) Prasetyono, H., Abdillah, A., & Fitria, D. (2018). Academic supervision toward teacher's performance through motivation as intervening variable. *Journal of Education and Learning (EduLearn)*, 12(2), 188–197.
- 24) Renata, R., Wardiah, D., & Kristiawan, M. (2018). The influence of headmaster's supervision and achievement motivation on effective teachers. *International Journal of Scientific & Technology Research*, 7(4), 44–49.
- 25) Romy, E., Ardansyah, M., & Hambali, H. (2021). The Influence of Pedagogic Competency, Leadership of Schools, and Work Motivation Towards Teacher Performance in State Elementary Schools in Medan City. *International Journal for Educational and Vocational Studies*, 3(3), 169–176.
- 26) Sherly, S., Lie, D., Candra, V., Siallagan, D. M., & Sudirman, A. (2021). Interpretation of the Effects of Job Satisfaction Mediation on the Effect of Principal Supervision and Compensation on Teacher Performance. *Journal of Educational Science and Technology (EST)*, 7(1), 105–116.
- 27) Solihati, E., & Agustin, M. (2020). Literacy Leadership Camp (Leadership Stimulus Program for Teachers and Educators in Early Childhood Education). *International Conference on Early Childhood Education and Parenting 2019 (ECEP 2019)*, 94–99.
- 28) Susanti, S., Wardiah, D., & Lian, B. (2020). Effect of Academic Supervision of School Heads and School Culture on Quality Teaching Teachers. *International Journal of Progressive Sciences and Technologies*, 20(1), 67–77.
- 29) Uçar, R., & İpek, C. (2019). The Relationship between High School Teachers' Perceptions of Organizational Culture and Motivation. *Journal of Education and Training Studies*, 7(7), 102–116.
- 30) Ulya, Z., Utomo, S., & Ismaya, E. A. (2021). The Influence of Principal Leadership on Teacher's Performance of Primary School Teacher. *ANP Journal of Social Science and Humanities*, 2(2), 93–98.
- 31) Utami, N. M. S., & Wedasuwari, I. A. M. (2019). Determinants of teacher performance and education power through work motivation, learning leadership, and organizational culture. *INTERNATIONAL JOURNAL OF SUSTAINABILITY, EDUCATION, AND GLOBAL CREATIVE ECONOMIC (IJSEGCE)*, 2(2), 13–20.
- 32) Yousaf, S., Usman, B., & Islam, T. (2018). Effects of Supervision Practices of Principals on Work Performance and Growth of Primary School Teachers. *Bulletin of Education and Research*, 40(1), 285–298.
- 33) Yusuf, M., Fitria, H., & Mulyadi, M. (2020). The Influence of Teacher's Supervision and Professionalism on Teacher's Performance. *Journal of Social Work and Science Education*, 1(3), 234–240.



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Literary Feminism in Sudan

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ABSTRACT: In this paper, the researcher discusses Literary feminism in Sudan. The historical method is used to investigate the features and characteristics of literary feminism. The topic of feminism in general and feminist literary theory in particular with its features and characteristics are discussed. The paper ends with the important feature and characteristics of modern literary feminism in Sudan one of which is that writing about very personal relations is clear in this period, on which the female writer bases her creativity to express her own experience, her knowledge of being different and free, and her fighting against the various injustice machines that try to control her body and mind.

KEYWORDS: Feminism, Sudanese feminism, literary feminism, literary movements

I. INTRODUCTION

Feminism is a theory that discusses women's rights to have equality with men in politics, economic and social fields. It is a dialogue that includes several philosophies theories, and movements that are involved in the subject of gender variation to encourage equal opportunity for women and fight for women's claims and concerns (en.wikipedia.org). The history of feminism is divided into three movements. The 1st movement was in the 90th and early 20th centuries, the 2nd movement was in the 1960s and 1970s and the 3rd movement continues from the 1990s to the present-day (Krokke & Sorensen, 2005: 24). Feminist theory emerged from these feminist movements (Chdorow, 1989 & Gilligan, 1977 cited in en.wikipedia.org). It is apparent in a diversity of fields like feminism in geography, literary criticism, and history.

Feminism has transformed leading viewpoints in a broad selection of areas within society in the Western, extending from law to culture. Throughout much of the feminist movement's theories and history, it had leaders who were primarily white women of middle-class from North America and Western Europe (Walker, 1983; Collins; & Narayan, 1997 cited in en.wikipedia.org). But, from the time of Sojourner Truth's (1851) address to feminists of America, women of other nations have suggested other feminisms (Collins, 2000 cited in en.wikipedia.org). This tendency speeded up with the Civil Rights movement in the 1960s in the USA and the downfall of European colonization in parts of Southeast Asia, Latin America, the Caribbean, and Africa. Ever since women in old colonies of European and the 3rd World have planned their versions which are known as "post-colonial" and "3rd World" feminisms (Narayan, 1997).

Ever since the 1980s, perspective activists have claimed that the women's movement should explore how females' feeling of unfairness correlates to that of classism, homophobia, colonization, and racism (Collins, 2000 & Harding, 2004 cited in en.wikipedia.org). In the 1980s and 1990s postmodern feminists claimed that gender roles are socially constructed and that it is not possible to oversimplify women's experiences across histories and cultures (en.wikipedia.org).

II. SUDANESE FEMINIST SCHOOLS

The feminist movement of the world as we know it, in theory, began in the West. It reflected the reality and problems of women in the West. The first schools in the literature of feminism are liberal feminism, Marxism, and socialism. We have found in Sudan some shadows of these kinds of ideas and not all of them. (Mahmoud, 2008: 104.) Mahmoud (2008:105) claims that the women's movement in Sudan passes through various phases, within each stage, there were several directions, and this is what distinguishes the feminist movement performance. She classified women's movements in Sudan into several schools and proposed additional schools from a Sudanese perspective, as follows:

- National Liberation Feminism.
- The Post-colonial Feminism.

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- Globalization and Post-globalization Feminism.

III. FEMINIST LITERARY THEORY:

This theory is a complicated, active area of study that derives from a large range of significant theories, like anthropology, structuralism, psychoanalysis, cultural materialism, and Marxism.

Even though feminist literary philosophy is regularly described merely as the use of feminist techniques and beliefs to examine the textual structures of general meaning, feminists' explanations of gender and feminism have experienced several significant changes since the early 1970s. By implementing the existing feminist visions and using them in new practices, literary theorists convert them, thus creating an ever more varied field of study.

A. The Beliefs of Feminist Literary Theory

Even though the variety, many feminists literary theories share numerous hypotheses. Firstly, they commonly think that hierarchically ordered male-female gender relationships affect all parts of human social life, including obviously un-gendered types of thought, by creating a chain of binaries ... like presence/absence, active/passive, and universal/particular. In which "feminized" terms have a devalued place.

Since symbols of literature have real effects on the lives of people, these non-symmetrical male-female binaries both clarify and strengthen the repression of actual-live females.

This theory requires a double movement including both the critique of sociolinguistic forms and the creation of alternate types of writing and reading.

In its initial stages, this two-fold movement concentrated entirely on the gendered concerns of females; nevertheless, the enhanced involvement of color, connected with the growth in gender studies throughout the early 1980s, has increased feminism's subject of study significantly.

B. Phases of Feminist Literary Theory

In general, this theory can be divided into four phases that focus differently on gender-based literary concerns:

- i. An evaluation of depictions of females in the text that are written by males.
- ii. "Gyno-criticism," a phrase invented by Elaine Showalter (1979) that describes the growth of a distinctively female aesthetic and an alternate, women's literary tradition.
- iii. The analysis of the approach of all writings, together with those written by men, are marked by gender, which can be called 'gender studies,'.
- iv. Investigations of how class, racial, and sexual variations between women develop earlier types of gendered writing and reading. It is essential to realize that these phases are overlapping and connected; they represent trends often happening concurrently rather than in isolated sequential stages. Therefore, the rise up in the studies of gender throughout the early 1980s developed simultaneously with the respect and evaluation of the various class, ethnic, and sexual differences among women (www.glbtc.com, 2010:1).

IV. SUDANESE LITERARY FEMINISM

It is clear that the huge development in the social and political history of Sudan affects the situation of women and gives her room to study the social, economic, and political features of this situation, besides it offers the possibility of studying women's creativity development (Bushra, 2004: 76).

The participation of a woman in the literary world and the defense of her freedom is a step in the way of her liberation, that is to say, the way of development in a masculine society, governed by paternalistic values (ibid: 76).

The first steps in the Sudanese female writings were mere romantic ideas, like those of Asma bint al-Shimalia, Safia al-Shiekh al-Ameen, Zainab al-Fatih al-Badawi ... etc. during this journey appeared a novelist star – that was- Malkat al-Dar Mohammed to whom the superiority of Sudanese women breaking – fearlessly- in the field of literature, she is one of the pioneer writer in literary feminism, who imposes her imprint in the literary works, on whose work the first features of literary feminism appears. This school was continued by Zeinab Belail and many others till we reach Buthaina Khidir Mekki about whose writings a deep disagreement and argument have been raised. To her and Melkat al-Dar before the support of a new line of literary feminism in the Sudanese narration goes back, in which they try to show women's anxiety, and reveal man's partiality and domination of women (Sawi, 2010: 37).

Among the different types of creativity, Sudanese woman has many contributions which need to be studied for many reasons and which make the female writer, sometimes, superior to her male counterpart (Al-Balal, 2002: 5-6).

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One of the things that are related to the female's writing is the restricting of her writing to her world as a female- with exceptional signs in some of the writings- like the writing on arresting and political struggle in Selma Salama's writings; except these signs, there is no trail to write out her world with all its special issues.

Women's creativity ... is at its end a self-uncovering, that is to say, the female is always imposed by her problems and frustrations in a patriarchal society. She does not go beyond her internal world, the female world; she does not manage to write- except rarely- about society or to go beyond her internal world (Bushra, 2004:94).

Fadl justified this because the internal world is more attractive to the female writers' attention, it is a reformation of her world, and an extension of her portrayal from outside which is still against her and which is difficult for her to accept (cited in Bushra, 2004: 94). In this type of feminist writing the concentration is on the femininity as an ideology which opposes the ideologies that belittle the position of woman and devalues her (Sawi, 2010: 37).

A. The Features and Characteristics of Sudanese Traditional Literary Feminism During the 50s

The forties and fifties witnessed the rise of social and national consciousness, the aims of which are summed up in the necessity of freedom ... accompanied by this movement, women started to contribute through their private communities, like the 'Women Union', which contributed in the social knowledge of the Sudanese women and prepared them to participate in the cultural, political, intellectual, and public fields.

This movement started with Fatima Abd al-Rahman, who published her intellectual and literary works in the mid-thirties, followed by Amaal Abbas by wrote a collection of short stories that deal with several social, emotional, and existential issues ... like her story " Masraa Galbein" which was published in " Sawt al-Maria- 1955". During the fifties appeared Amna Younis, and Bakhita Amin Medani whose stories are significant by discussing social problems and family relations ...we find, also, Salma Ahmed al- Basheer who published her works in "al-Manar magazine- in 1957" the important one of which is " Yatiman". Balal (2002: 14) thinks that the previous examples can give a general picture of the narrative writing scene from the mid of fifties to the mid of seventies ... which at the same time has similar features and characteristics of the Sudanese story writing that time.

The feminine writing at that time shows its relation to social issues and the legal wishes for liberation and removing ignorance and underdevelopment. Besides, it is noticed that the main characters in the female writings are the oppressed, weak, and destructed female characters; so the female writes about her suffering in her terrible reality in a very special way (Balal, 2002: 14). The female writer is usually concerned with her world problems and difficulties, so, she is contrary to the male writer who usually tries to discuss human problems in general, being male or female (Bushra, 2004: 103).

B. The Important Features of Sudanese Modern Literary Feminism

It is known that the seventies were a highly arousing period of a liberal discourse in all directions, inside this liberal and modernization discourse begins the narrative of feminism appears as an indication of this general discourse. This modern literary feminism is distinguished by many features which are summarized by Balal (2002: 20) in the following points:

- Firstly: literary feminism, in this stage, benefits from modern literary writing techniques, like, parallelism, faltering, synchronization (coincident), monologue, remembering, recalling ... etc.
- Secondly: The language of this period's stories is closer to that of poetry, which is full of denseness, suggestions, and various indications. What makes it more limpid is its connection with the first person pronoun and consequently enabling the author to write, freely, about his personal feeling.
- Thirdly: In addition to the above, we find that writing about very personal relations is clear in this period, on which the female writer bases her creativity to express her own experience, her knowledge of being different and free, and her fighting against the various injustice machines that try to control her body and mind.
- Fourthly: in this stage, the differences between the female and male writings can be noticed, besides, the variation in style among the female writers themselves.

V. CONCLUSION

This paper discussed Sudanese literary feminism from a historical point of view in addition to writing about feminism in Sudan in general; then the paper ends with the important features of modern literary feminism.

REFERENCES

- 1) Ali, Elsadig Hussein Fadlalla (2013) 'Gender in Sudanese Literature concerning the Image of Woman in Contemporary Sudanese Novel', an unpublished Ph.D. thesis, University of Dongola, Sudan.
- 2) Ali, Elsadig Hussein Fadlalla (2021) 'The Development of the Sudanese Novel from 1948 – 2010', *PSYCHOLOGY AND EDUCATION* 58(1): 5923-5927, ISSN: 00333077 www.psychologyandeducation.net

Literary Feminism in Sudan

- 3) Balal, Mawia (2002) 'The Female Fictional Writing in Sudan: The female as a Writer and the Female as a Subject to the Writing Model', Sudan Culture and Information Center, Cairo.
- 4) Bushra, Mohammed El-Mahdi (2004) 'Shamaa fi Alzhalaam (A Candle in the Darkness)' Hassad for Publishing, Khartoum.
- 5) Sawi, Mustafa Mohammed Ahmed (2010) "Al-Mashehed Al-Riwaie el-Sudani min Al- el-Tasees ila el-Tajnees" (Sudanese Narrative Scene since its Beginning), Bohoth fi Al-Riwaia el-Sudania (Researches in Sudanese Novel) (pp.33-46), Abdel-Kareem Mergani Cultural Center, Omdurman, Sudan.
- 6) (www.glbtq.com, 2010:1). www.glbtq.com/literature/feminist_lit_theory.html
- 7) Krolokke, Charlotte & Sorensen, Ann Scott (2005) 'Three Waves of Feminism, From Suffragettes Grrls', Gender Communication. Theories and analysis: From Silence to Performance (pp.1- 24) Sage Publications, Inc. Available @ [www.feminish.com/.../6236 chapter 1 krolokke 2nd Rev Final pdf](http://www.feminish.com/.../6236%20chapter%201%20krolokke%202nd%20Rev%20Final%20pdf)
- 8) Mahmoud, Fatima Babikir (2008) 'Al-Itijahat Al-Fikria fi Al-Haraka Al-Nisaaia Al-Sudania (Intellectual Trends in the Sudanese Women's Movement)', Azza Publishing and Distribution (Sudan), and Institution of African Alternative (IFAA), London.
- 9) Narayan, Uma (1997) 'Dislocating Culture: Identities, tradition, and third-world feminism', 1st edition, Routledge, New York.



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Government Budget and Funding for Public Policies and Programs in Bangladesh



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ABSTRACT: This paper discussed briefly the Composition of Government Budget of Bangladesh of recent years with analyzing the composition of expenditure, explaining the share or ratio of specific policy areas in the expenditure and how the share or ratio of each major policy area got changed in the last 15 years. This paper also investigated the policy areas which were expanded and which got shrunk with explaining their reason of changes.

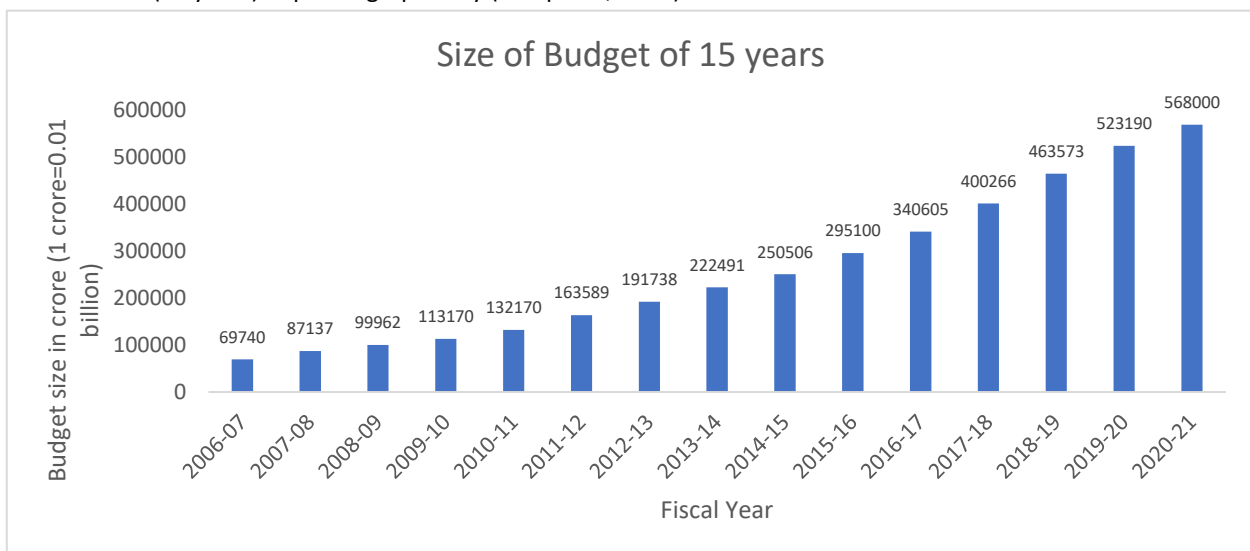
Along with above, this paper summarized various tax sectors in Bangladesh mentioning their size and explaining major changes in tax system.

KEYWORDS: Bangladesh Budget; development budget; public administration; fiscal year; tax

INTRODUCTION

Bangladesh, the south-east Asian delta, has born after a 9 month long sanguinary liberation war in 1971. Next year on 30 June in 1972, the first historical budget was presented by the first finance minister Mr. Tajuddin Ahmed in the Bangladesh parliament. The total figure of the budget was 7.86 billion Bangladeshi Taka only. However, since that opening moment, budget has been being passed in every fiscal year. The 50th budget was passed for the fiscal year 2020-2021 on 11 June 2020 which was around 723 times bigger than the first budget. The main revenue income source of Bangladesh government is collecting tax. More than 80% of the total income comes from tax that is divided into two types: direct tax and indirect tax. Rest portion comes from various fees and duties.

Size of national Budget: the national budget of Bangladesh is growing every year. Here is the size of budget for financial year 2006-07 to 2020-21 (15 years) depicted graphically (Wikipedia, 2020):

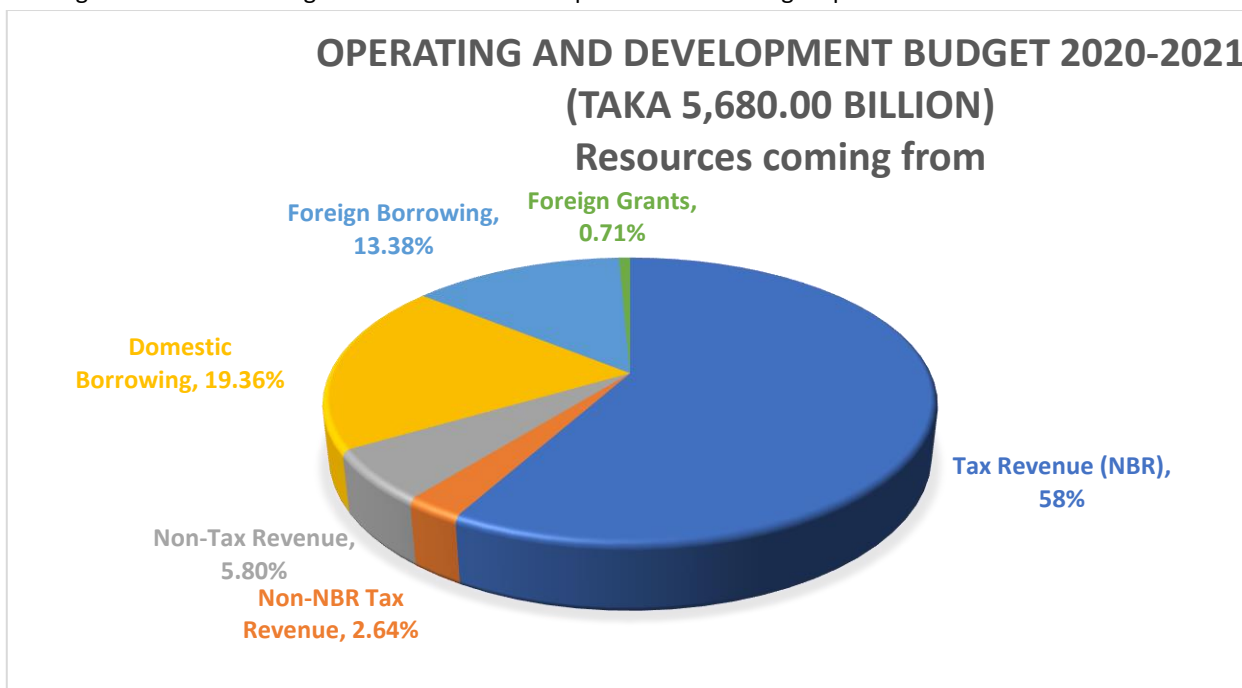


Composition of the recent Government Budget of Bangladesh: The basic nature of Bangladesh’s national budget for every fiscal year is that it is deficit in type (excluding foreign grant). For fiscal year 2020-2021, the target of total revenue income is Tk. 3,780 billion. Out of this, Tk. 3,300 billion will be collected through the NBR. Tax revenue from non-NBR sources has been estimated

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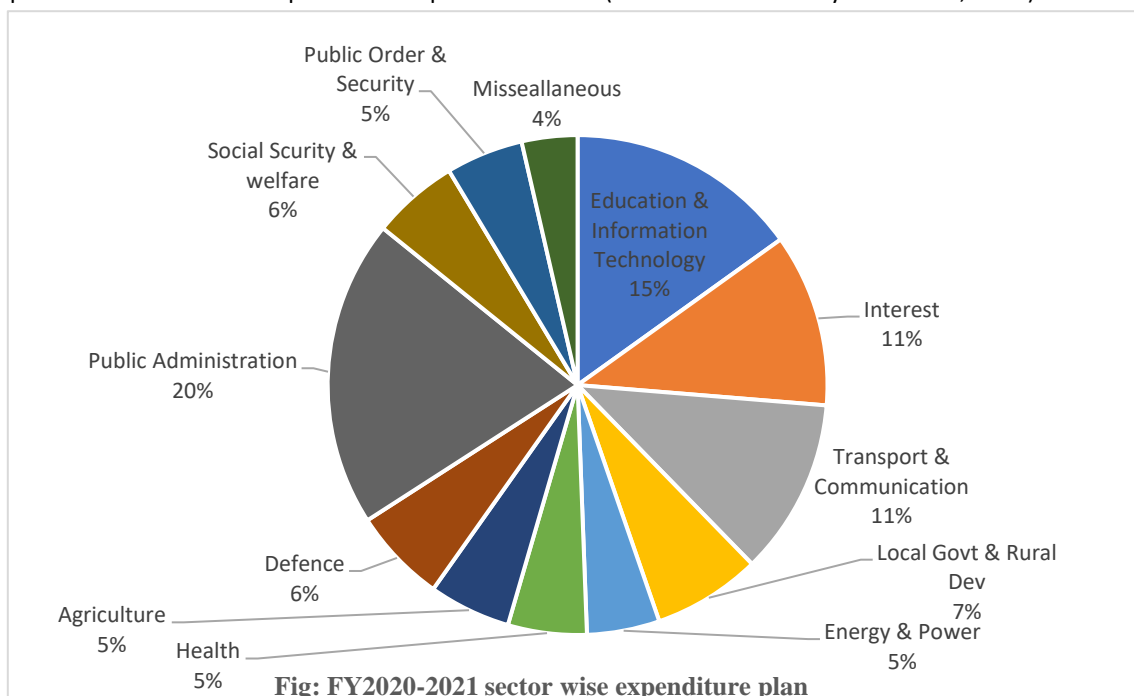
at Tk.15,00 billion, while the non-tax revenue is estimated to be Tk. 33,00 billion. On the other hand, the size of the total expenditure has been estimated at Tk. 5,680 billion. Estimated domestic borrowing is 1099.83 billion, foreign borrowing is 7600.4 billion and foreign grants is 4013 billion this fiscal year (Ministry of Finance, 2020).

The percentage of resource coming from each sector are depicted below through a pie chart:



Whereas 58% tax revenue comprises of VAT 37.90%, import duty 11.50%, income tax 31.50%, supplementary duty 17.50%, and export and excise duty and other taxes 1.60% (Ministry of Finance, 2020).

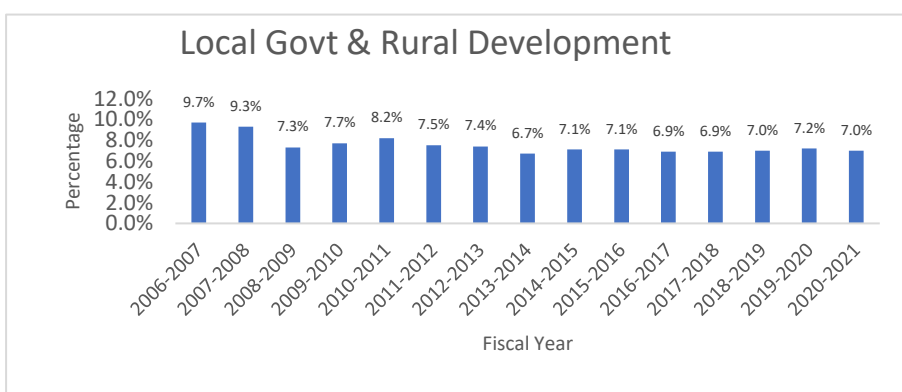
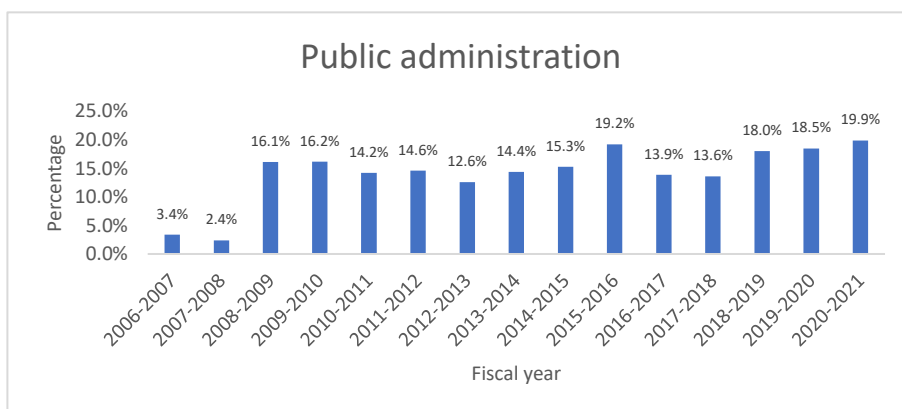
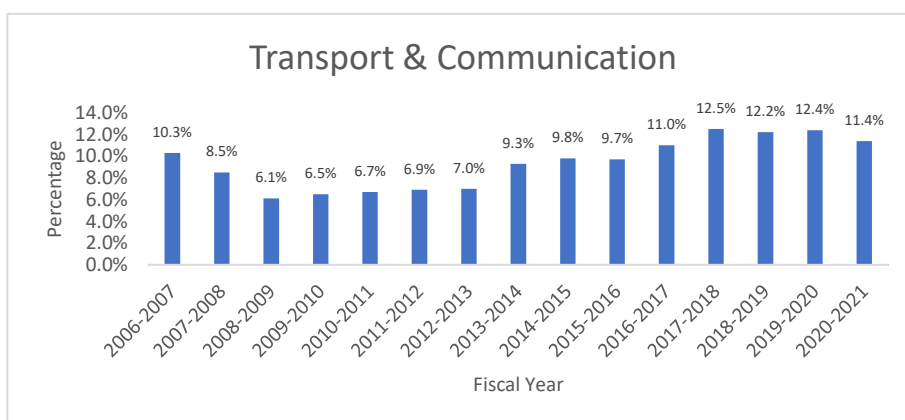
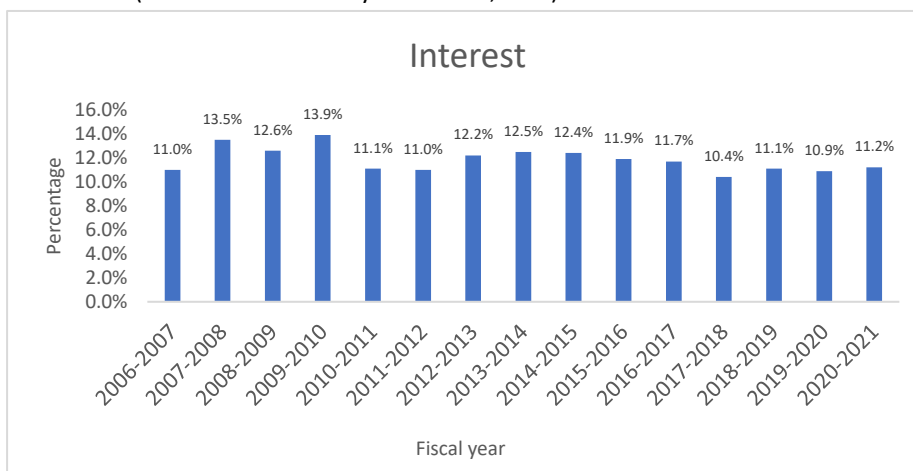
Now, the expenditure estimated is depicted in the pie chart below (data source: Ministry of Finance, 2020):



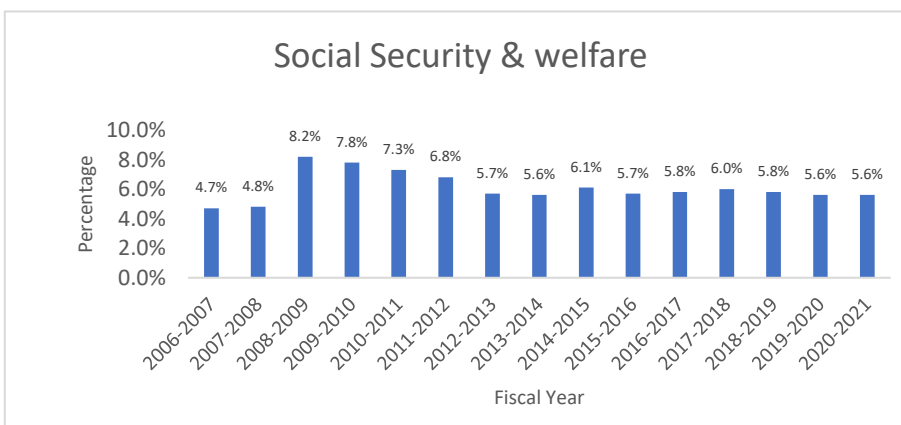
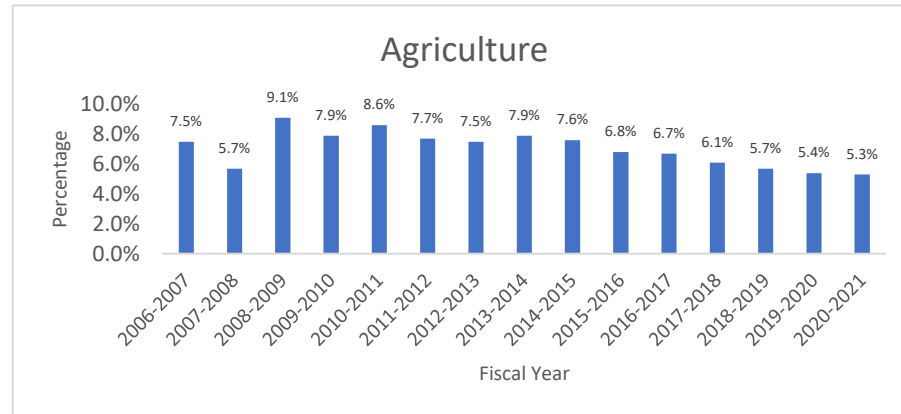
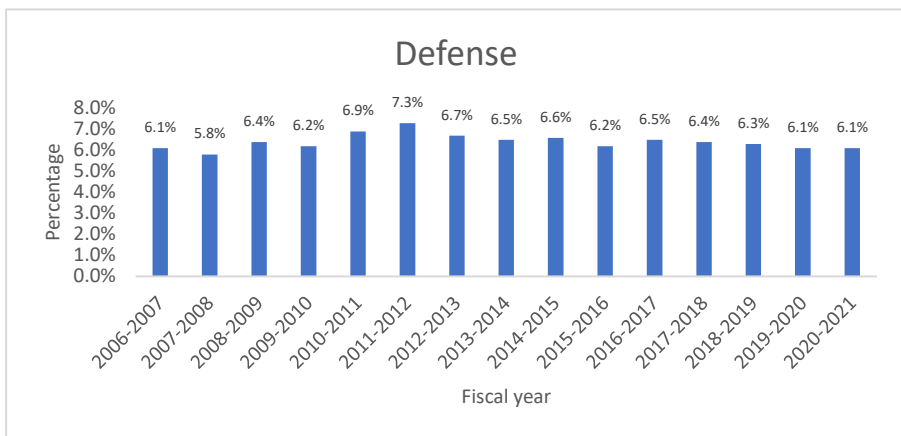
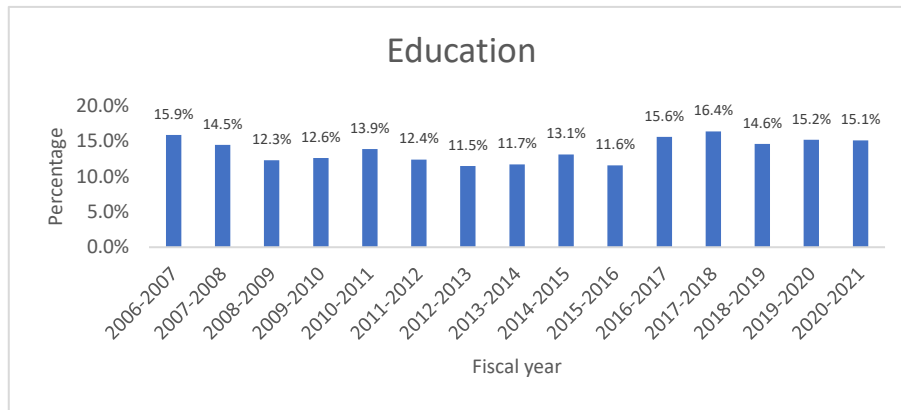
From the above-mentioned pie chart, it is conspicuous that the public administration sector holds the topmost position in expenditure (20%) and energy and power, health, agriculture, and public order and security hold the lowest position in expenditure (5%). However, if we look at the expenditure sector individually in 15 years' budget (from 2006-07 to 2020-2021) represented below by bar chart, a common pattern is clearly apparent from Bangladesh's Budget. Most of the cases budget increases every year per each sector, although there are some examples of decrease. However, the increase or decrease varies

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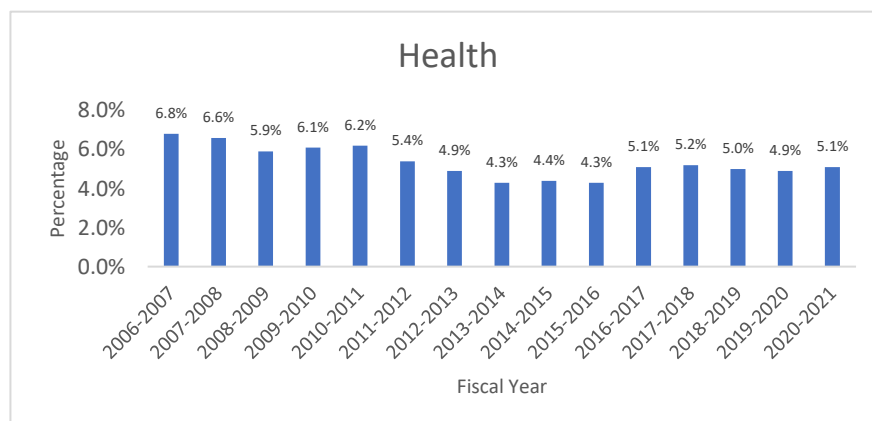
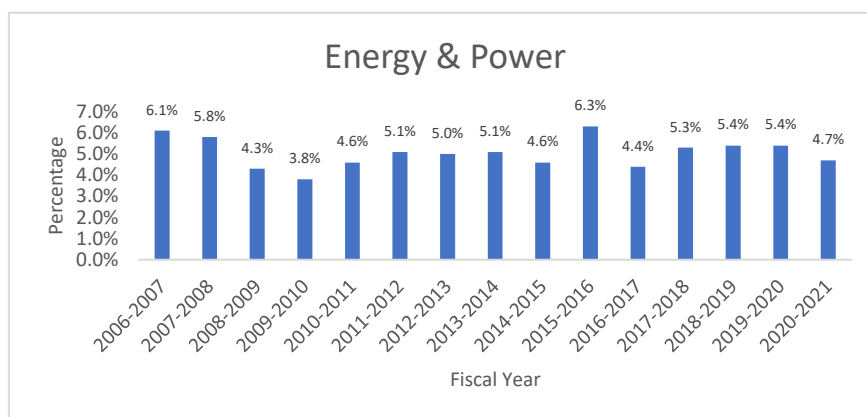
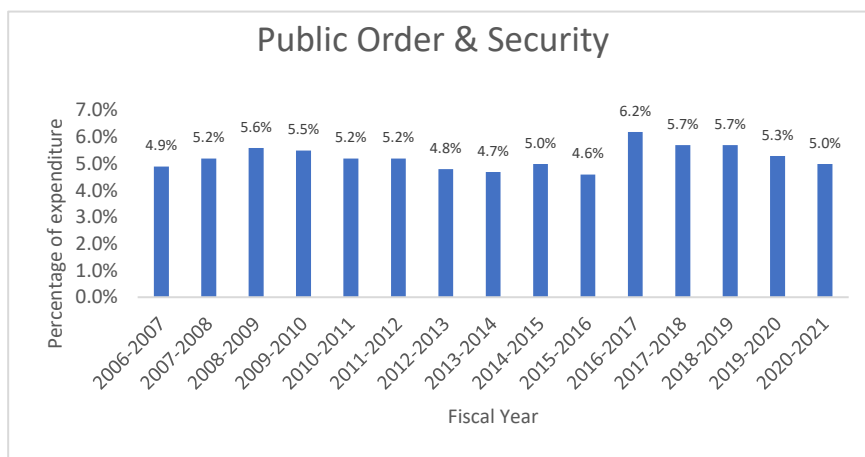
quite slightly. The size of the budget and inflation increase every year. There are no revolutionary changes in any sector, no sector is prioritized specially in any year, almost no experiments are taken. It is as usual, typical and not well-researched which is one of the weak points of Bangladesh's budget that is criticized every year by many economists of Bangladesh. Here are the charts depicted for individual sector (data source: Ministry of Finance,2020):



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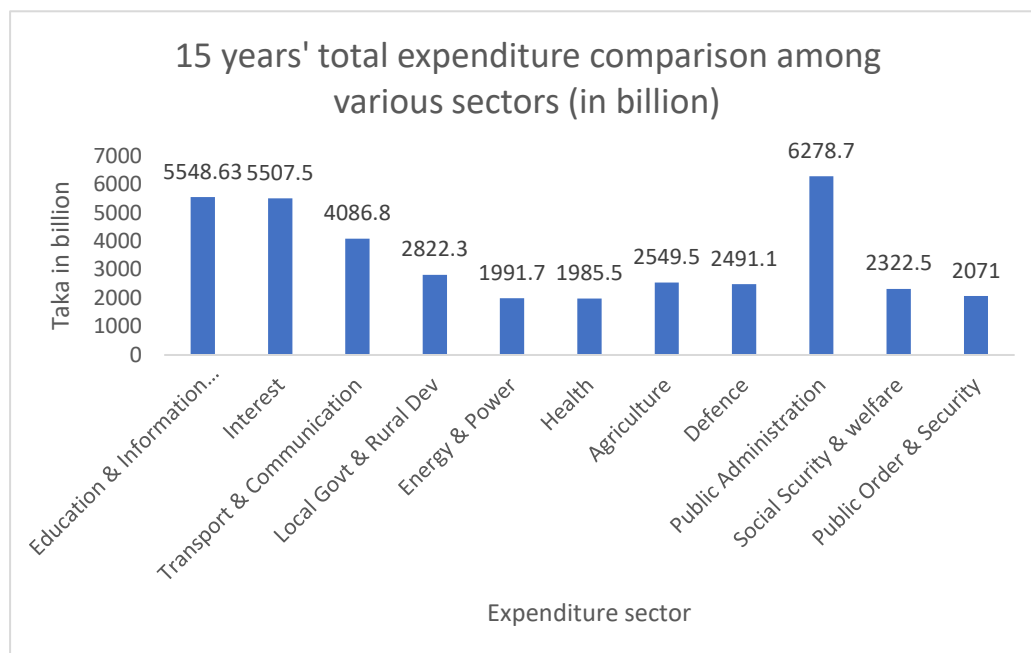


The most and least prioritized expenditure sector of Bangladesh: Based upon the data taken from ministry of finance, we have prepared a list of all the major expenditure sector of Bangladesh's budget according to their priority order which is given below:

1. Public administration
2. Education & Information
3. Interest
4. Transport & communication
5. Local Govt. & rural development
6. Agriculture
7. Defense
8. Social security & welfare
9. Public order & security
10. Energy & power
11. Health

The priority list was prepared from the total expenditure of each sector of 15 fiscal years' budget (2006-07 to 2020-21). The comparison among those sectors is depicted below by a bar chart (data source: Ministry of Finance, 2020):

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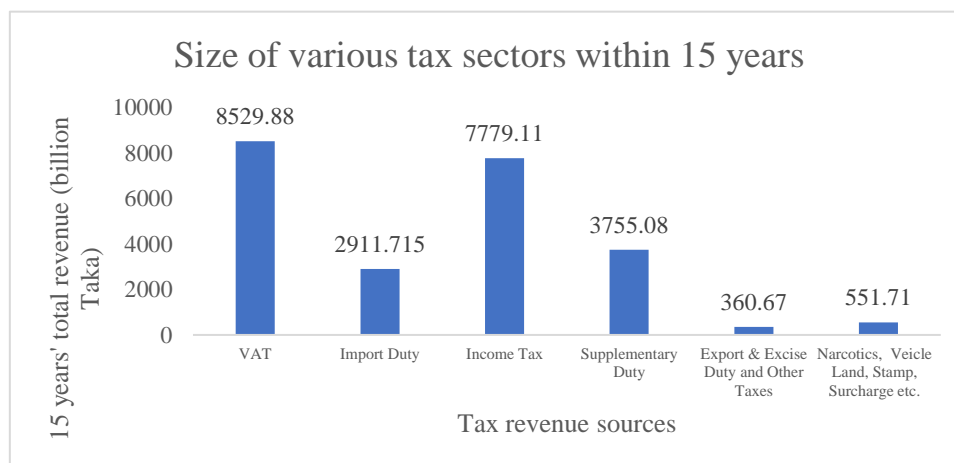


From the aforementioned list and chart, it is conspicuously apparent that the most prioritized expenditure sector of Bangladesh's budget is Public administration. Govt. has spent taka 6278.7 billion by 15 years in this sector and we can say it reasonable, because it covers the cost of honorable president's office, prime minister's office, ministry of public administration, ministry of finance, election commission, Public service commission etc. among whose ministry of finance consumes the lions share of the budget (Samakal, 2018). It is also, however, a matter of hope that education is prioritized by the government (education sector holds the second-most position). In Bangladesh, the literacy rate in 1971 (at the time of liberation war) was only 18% (Bhattacharjee, 2020). After achieving independence from the then west Pakistan, Bangladesh government targeted education as an important sector that needs to be improved. Due to their continuous effort, education sector flourished day by day. The literacy rate, through 2007 consensus, was measured as 46.66% which was finally measured in 2018 consensus; and there is a drastic improvement found; it was boosted up to 3.91% (macro trends.net, 2020) which shows that Bangladesh is on the right track in this case.

But in case of some other sectors especially in local government and rural development (position 5 out of 11), agriculture (position 6), social security & welfare (position 8), energy and power (position 10); the expenditure amount is vulnerable. Bangladesh is still an agriculture-based country. Although, the contribution on GDP of agriculture is less than service and industry, agriculture is vital for people's livelihood. It is impossible to obtain food security and zero hunger goal in SDGs without prioritizing agriculture. Rural development is directly related to agriculture, because most of the foods are cultivated in villages. But the most crucial thing is the tiny amount of expenditure in health sector. It is criticized by most of the specialists and economists every year but there is no improvement detected. Rather, the budget was decreased to some extent. In 2006-07, the allocation for health sector was 6.8% which was reduced to 4.9% in 2019-20 and 5.1% in 2020-2021 (Ministry of finance, 2020). In 1997, government participation in overall health expenditure was 37% which was reduced to 23% in 2018 which means people have to pay 67% from their own to get health service (somoynews.tv, 2020). Doctor's platform for people's health, an organization of Bangladesh's doctor said, due to the lower amount of allocation of health expenditure in national budget, about 6 million people go below the poverty line to meet their health expenses (Prothom Alo, 2020). It is a matter of great regret that, even in the corona situation this year, national budget for health sector did not bring any novelty. The main reason of such type of negligence as per my view is the ignorance of health importance. People of Bangladesh, a typical developing country, are not concerned about safety, prevention, precaution and health to such an extent the people of the developed countries are. Moreover, most of the bureaucrats and politician in policy making position regarding health are not from medical background or not educated from health-related subject, this is why they are unable to give importance the health sector.

Various tax sectors and their size in Bangladesh: In Bangladesh, there are some major tax types, i.e.; personal income tax, corporate income tax, value added tax (VAT), supplementary duty, import duty, export duty, excise duty etc. The total share of various types of tax of 15 years (from 2006-07 to 2020-21) is depicted below (data source: Ministry of Finance, 2020):

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From the aforementioned chart, it is apparent that VAT is the most contributing tax type of Bangladesh whereas income tax has taken the second position. In Bangladesh, standard value of VAT is 15% in most of the goods and services (Ministry of finance, 2020).

To collect these taxes there is an authorized government organization in Bangladesh named 'National Board of Revenue (NBR)'. Around 97% of tax revenue and 85% of total revenue are collected by NBR (Wikipedia, 2020)

Recent amendment in the income tax ordinance: In fiscal year 2020-2021, the previous income tax ordinance was slightly changed. The changes are discussed below:

According to assessment year 2019-20 there are 23 Chapters, 360 Sections and 7 Schedules. After change, now the number of sections is increased from 360 to 366. Changes done in IT Ordinance, 1984 by Finance Act, 2020 are (Sarkar, et al., 2020):

The slab of tax exempted income is also changed by the following way (NBR, 2020):

New sections inserted: 6 sections (sections 16H, 19AAAA, 19AAAAA, 31A, 32A, and 184G)
Existing section deleted: no section deleted;
Existing sections substituted: 3 sections (sections 51, 52Q, and 53BBB);
Existing sections amended: 26 sections (sections 2, 19BBBBB, 28, 30, 33, 42, 46BB, 52, 52A, 52AA, 52C, 52R, 52U, 53BB, 53BBBB, 53E, 56, 68, 68B, 75, 75A, 80, 82C, 124, 158, and 184A); and
Existing Schedule amended: 2 Schedules (First Schedule, and Sixth Schedule).

The tax rates per income slab were also changed as follows (NBR, 2020):

General Tax Rate			
Income Slabs (Previously)	Income Slabs (Current)	Tax Rate (Previously)	Tax Rate (Current)
Up to Tk. 250,000	Up to Tk. 300,000	Nil	Nil
Next Tk. 400,000	Next Tk. 100,000	10%	5%
Next Tk. 500,000	Next Tk. 300,000	15%	10%
Next Tk. 600,000	Next Tk. 400,000	20%	15%
Next Tk. 3,000,000	Next Tk. 500,000	25%	20%
On balance	On balance	30%	25%

CONCLUSION

It is a sign of hope that the figure of national budget of Bangladesh is increasing every year. But it is also needed to be considered to the government that some important sectors like energy, health become neglected every year. Government should focus on these sectors to reach the goal of SDGs. Due to the recent pandemic, it is high time government kept eyes on health sector specially. The income of tax revenue of Bangladesh is not satisfactory. As all the income and expenditures of Bangladesh are still not digitally monitored, there are a lot of chances of tax invasion and people use these chances frequently. Government should develop digital system to increase their income by earning more tax revenue. Government also become stricter to collect

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corporate tax minutely. More income of the government will help Bangladesh to escape from deficit budget and a surplus budget will help to make a developed Bangladesh shortly.

REFERENCES

- 1) Bhattacharjee, S. (2020), *Literacy: Awareness is the key*, the independent (online version), accessed on 17 December 2020, url: <http://www.theindependentbd.com/post/252902#:~:text=The%20literacy%20rate%20for%20people,1991%20and%2045.3%25%20in%202001.>
- 2) Macrotrends.net (2020), accessed on 17 December 2020, url: <https://www.macrotrends.net/countries/BGD/bangladesh/literacy-rate.>
- 3) Ministry of Finance, Bangladesh (2020), http: mof.gov.bd
- 4) NBR (National Board of revenue), http: nbr.gov.bd
- 5) Prothom Alo, the daily (2020), accessed on 17 December 2020, url: <https://www.prothomalo.com/bangladesh/%E0%A6%A6%E0%A7%87%E0%A6%B6%E0%A7%87-%E0%A6%85%E0%A6%B8%E0%A7%81%E0%A6%B8%E0%A7%8D%E0%A6%A5%E0%A6%A4%E0%A6%BE-%E0%A6%A8%E0%A6%BF%E0%A6%B0%E0%A6%B8%E0%A6%A8%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0%E0%A6%BF-%E0%A6%B8%E0%A6%B9%E0%A6%BE%E0%A7%9F%E0%A6%A4%E0%A6%BE-%E0%A6%95%E0%A6%AE%E0%A6%9B%E0%A7%87>
- 6) Samakal, the daily (2020), online version, accessed on 17 December 2020, url : <https://www.samakal.com/economics/article/1806455/%EF%BB%BF%E0%A6%8F%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%B8%E0%A6%B0%E0%A7%8D%E0%A6%AC%E0%A7%8B%E0%A6%9A%E0%A7%8D%E0%A6%9A-%E0%A6%AC%E0%A6%B0%E0%A6%BE%E0%A6%A6%E0%A7%8D%E0%A6%A6-%E0%A6%9C%E0%A6%A8%E0%A6%AA%E0%A7%8D%E0%A6%B0%E0%A6%B6%E0%A6%BE%E0%A6%B8%E0%A6%A8-%E0%A6%96%E0%A6%BE%E0%A6%A4%E0%A7%87>
- 7) Somoynews.tv (2018), accessed on 17 December 2020, url : <http://somoynews.tv/pages/details/115111/%E0%A6%AC%E0%A6%BE%E0%A6%9C%E0%A7%87%E0%A6%9F%E0%A7%87-%E0%A6%85%E0%A6%AC%E0%A6%B9%E0%A7%87%E0%A6%B2%E0%A6%BF%E0%A6%A4-%E0%A6%B8%E0%A7%8D%E0%A6%AC%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%A5%E0%A7%8D%E0%A6%AF%E0%A6%96%E0%A6%BE%E0%A6%A4>
- 8) Sarkar, M.A.S., Huq M. (2020), *National Budget 2020-21 Income Tax and Changes in the Income Tax Laws: An Overview*, the Institute of Cost and Management Accountants of Bangladesh, http: icmab.org.bd.
- 9) *Jatiyo Budget* (Bangla page), accessed on 15 December 2020.



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Carrying Capacity of Farm Tourism Sites: Basis for Ilocos Norte's Sustainable Development Plan



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ABSTRACT: Since the launching of Paoay Kumakaway tourism campaign in 2010, Ilocos Norte has experienced mass tourism and has challenged the province's tourism carrying capacity. This has positively impacted the local economy but feared to have a detrimental effect to the environment when not properly managed. The study therefore aims to determine the current tourism carrying capacity of local farm tourism site. The study specifically looks to evaluate the top farm tourism sites like the REF MAD Dragon Fruit Farm in Burgos and Strawberry, Bugnay Farm in Adams. Aside from descriptive statistical tools, the tourism carrying capacity was computed using the Boullon's Carrying Capacity Mathematical Model. Purposive sampling was used and sample size was computed with a 5% margin of error based on the tourist/visitor arrival derived from the tourist destination. This study suggests the allowable number of visitors as this will not limit the attraction or a place from getting tourists. Results show that the Bugnay farm in Adams can accommodate 1,359 person per day for individual visit or 309 person per day for group visit of 6 members on average. The strawberry farm can accommodate 41,148 person per day for individual visit or 9,057 visitor per day for a group visit of 6 members on average. The REF MAD dragonfruit meanwhile can accommodate a total of 1,592 person per day for individual visit or 407 people for a group visit of 6 members on average. This number has not yet reached the maximum numbers that the facilities can accommodate. Since the farms in Adams and Burgos, are still not extensively promoted as a tourism destination, some management strategies can be applied. This is to increase the carrying capacity and come up with community development that does not compromise the environment, economy and culture and make the visitors visit more comfortable.

KEYWORDS: Tourism, Carrying Capacity, Farm, Ilocos Norte, Philippines

I. INTRODUCTION

With the advent of mass tourism, travel and tourism became a leisure activity to most people who have an interest, time and disposable income. Some countries are opening their gates, limiting barriers of entry and offers cheap holidays to attract more visitors. This can lead to both positive and negative impact to the economy, culture and environment.

The importance of tourism on the economy cannot be over-emphasized. It is one of the very few industries that has been identified as a cornerstone of the Philippine economy [1]. Tourism as a form of development, helps revitalize local economy, provides employment opportunities and have been a major source of income to most of the countries in the world like the Philippines. Tourism provides equal economic and social opportunities down to the lowest economic strata. Not only multinational companies invest in the industry but also the micro, small, and medium enterprises are encouraged to cater the needs of tourists. Ancillary services such as public utility vehicles, banks, retail stores and even sidewalk vendors or peddlers experience the ripple effect of income benefits from the industry. Employment and job opportunities are given at all skill levels – from the top managers or executives down to the skilled workers, the industry provide job opportunities to everybody. In addition, tourism also gives environmental and social/cultural benefit to the community.

Tourism has been referred to as Janus-faced phenomenon – it has the potential to change societies for better or for worse [1]. Culture is one of tourism industry resources as it serves as attraction, thus culture of each place is preserved if not revived. The industry promotes cross cultural exchange to both the tourists and locals.

The environment is one of the three dimensions of tourism. As a tourism resource, the environment affects the quality of tourism experiences. In turn, tourism affects the quality of the environment [1]. Tourism helps a community to improve

Carrying Capacity of Farm Tourism Sites: Basis for Ilocos Norte’s Sustainable Development Plan

environmental quality such as preservation of important flora and faunas, conservation of natural attractions and even developing land for commercial development.

On the other hand, tourism also has a dark side. If the industry is not managed and planned properly it can cause negative impacts and problems. Tourism’s positive economic impacts are attractive but, in some cases, it also causes inflation and scarcity of resources. As to the culture, commodification is a common problem that is caused by tourism. Commodification refers to turning human relationship into commodity, one example is prostitution. Aside from commodification, tourism tends to take the authenticity and meaning of culture for granted for the tourists’ sake. There are rituals and rites that should be performed in a week or even a month but because a tourist average stay is more or less five days when travelling, then rituals are shortcut just so visitors can witness this cultural treasure. The interaction between tourists and locals may sometimes lead to conflict.

While tourism is relatively a clean industry, tourism can cause significant environmental damage. Moreover, local development policy may sometimes favor meeting the need of tourists at the expense of the environment (Cruz, 2016). Natural resources are taken care of when tourism industry booms in a place yet degradation, pollution and loss of biodiversity occurs when a place is exposed to human activities.

With this, the concept sustainable development in tourism has emerged as a panacea to this problem. Sustainable development has been an emerging trend and tourism stakeholders take part towards this concept. The concept of sustainable development is vital, as it seeks balance to the three pillars of the community.

One of the ways to mitigate negative impacts to tourism is identifying the attractions’ carrying capacity. Carrying capacity is important in many tourism areas, especially now that they are experiencing threat due to anthropogenic interventions, biodiversity loss, and climate change. This approach does not really limit the attraction or a place from getting tourists. It will serve as a guide as to how many people an attraction can handle without contributing to negative effects such as congestion and lessened comfort level and satisfaction of tourists.

Ilocos Norte as an agricultural province created farms that serve as an attraction at the same time. The REF MAD Dragon Fruit Farm in Burgos, Ilocos Norte and a potential strawberry, lychee and bugnay farm in Adams are some of the farm tourism sites in the province. Due to the massive influx of tourists traveling up north it is important to determine the carrying capacity of REF MAD Dragon Fruit Farm and other farm tourism sites in the province to be enjoyed by the future generations, makes it beauty lasting, provide a steady source of income to the local community and ensures high level of visitors’ satisfaction

1.1 Objectives

Generally, this study aims to determine the Carrying Capacity of Dragonfruit Farm in Burgos and Strawberry & Bugnay Farm in Adams, Ilocos Norte. Specifically, it aims to:

1. Identify the profile of the respondents along socio cultural, psychological, and economic consideration.
2. Find out the standard requirements of the visitors along space requirements, size of area used by tourists; hours of operation and hours used by tourist.
3. Know the limiting factors.
4. Derive with Real Carrying Capacity of Farm Tourism Sites; and
5. Suggest management strategies to compromise with the suggested carrying capacity

1.2 Framework of the Study

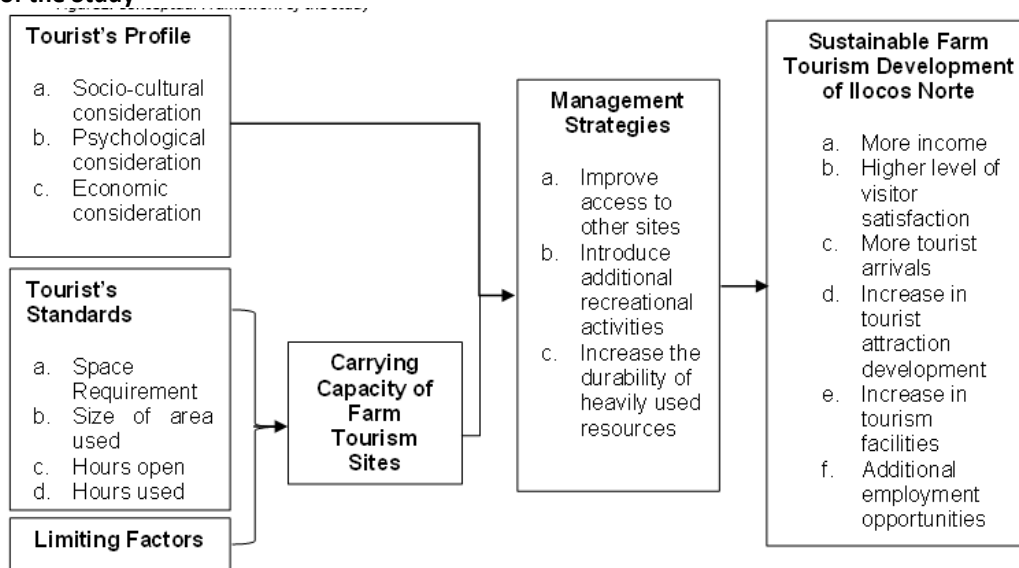


Figure1. Conceptual Framework of the study

Carrying Capacity of Farm Tourism Sites: Basis for Ilocos Norte's Sustainable Development Plan

II. LITERATURE REVIEW

A. Carrying Capacity

In the study of Cruz, he highlights that visitors' actions and activities during holidays in attractions, operating sectors such as hotels, restaurants and the like should be managed [1]. Managing visitors' activities is important to attain utmost satisfaction and memorable experience, to protect the property they are in, maintain the quality of environment, protect the natural flora and fauna of the place and save energy. A starting point to manage the impacts of visitor actions and activities is to establish and determine carrying capacity of a place.

Calanog meanwhile discussed that carrying capacity has many variances: (1) Physical carrying capacity – the spatial limitations of an area and is often expressed as number of units that an area can physically accommodate. (2) Ecological carrying capacity – measure of the population that an ecosystem can sustain, defined by the population density beyond which the mortality rate for the species becomes greater than the birth rate. In a recreational context, ecological carrying capacity can also be defined as the stress that an ecosystem can withstand in terms of charging number of visitors or activities before its ecological value is unacceptably affected. (3) Social carrying capacity – a measure of crowding tolerance. It has been further defined by De Ruyck et al. as the maximum visitor density at which recreationists still feel comfortable and uncrowded. (4) Economic carrying capacity – the extent to which an area can be altered before the economic activities that occur in the area are affected adversely. It therefore attempts to measure changes in economic terms [2].

In addition, in the study of Calanog, it presents ways to compute carrying capacity. For tourism purposes, two simple models are applied: the Boullon's carrying capacity mathematical model and the Limits of Acceptable Change. Either one of them may be used depending on the condition of the ecotourism site, the tourism activities and services offered and the purpose for which the carrying capacity is applied [2].

In Boullon's Carrying Capacity Mathematical Model (BCCMM), the carrying capacity is measured at three levels: (1) basic carrying capacity (BCC); (2) potential carrying capacity (PCC) and; (3) real carrying capacity (RCC).

The challenge is how to determine the standard requirement of the visitor. Standard may come in the form of time, space, material, psychological, ecological, and other needs of the visitor. Standards can be derived from secondary literature, say from publications of World Tourism Organization. Another approach in determining the standard is through a survey or personal interview with visitors. In doing so, some parameter should be looked into: (1) Psychological considerations includes visitation in group or individual, reason for coming to the site, recreational activities preferred, facility requirement, equipment brought to the site, parking requirements; (2) Economic considerations includes daily or monthly income, daily or monthly expenditure, specific amount set for tourism activities, source of income and general socio economic status in life whether rich, middle class or poor; (3) Socio-cultural considerations includes demographic profile, number of family members, occupation, organizational affiliation and beliefs and practices relative to tourism activities [2].

Once the standard is set and other relevant data and information are generated the computation of carrying capacity may proceed. In BCCMM, the carrying capacity is measures at three levels: Basic Carrying Capacity (BCC), Potential Carrying Capacity (PCC), and Real Carrying Capacity (RCC).

An alternative way to manage visitor impact is the Limits of Acceptable Change (LAC). Discussed by Calanog (2015), LAC is based on the idea that rather than outing a threshold on visitor number, management of an ecotourism area should be based on constant monitoring of the site as well as objectives for which area is established. The LAC process often includes public input and involvement at key steps.



Figure 2. Limits of Acceptable Change Process

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In the Philippines, there are few attractions that have a determined and published carrying capacity using both the Boullon's Carrying Capacity Mathematical Model and Limits of Acceptable Change and these are the Pamilacan Island of Bohol and Puerto Princesa Underground River of Palawan. According to the project team of CARCAP Pamilacan, the carrying capacity of Pamilacan Island is 22 boats a day or 220 visitors per day in the caution zone using the BCCMM. For the carrying capacity of Puerto Princesa Subterranean National Park, the preferred distance of boats from one another while on cruise are varying from different key informants. From the view or preference of visitors or users the distance between boats is 15 meters, PASUs opinion or view, the distance should be 100 meters apart. When the PASUs' recommendation is reduced to the visitors' preference the computed distance is 42.5 meters. Compromised distance is 30 meters. Moreover, the number of visitors allowed to visit the site in consideration with the LACs are the following: as to the visitors' preferences, 1,456 persons per day will be allowed; for the PASUs' recommendation only 18 person per day are allowed; the difference between the visitor's preference and PASUs will be 34 persons a day and the compromised carrying capacity is 345. With these computations the CARCAP Puerto Princesa team had come up, the management of the site was able to identify a carrying capacity that will meet halfway with all its stakeholders. As of today, the underground river can accommodate 700 persons a day.

In the city of Ramsar, Iran, [3] found out that tourism has caused negative effect in socio-cultural dimension and the quality of tourism experience has decreased due to the rate of tourist arrivals in the city is more than the skeletal carrying capacity of the destination.

On the other hand, the only Safari Park in Bangladesh (Bangabandhu Sheikh Mujib Safari Park), have a maximum average number of tourist of 5,000 a day which is relatively below the physical carrying capacity which is 17,300 with a rotation coefficient of 3.46. Moreover, the social carrying capacity is 4.38 person per day [4].

In Kaziranga National Park, psychological carrying capacity was employed and in order to derive the PCC, social norm curve was utilized. It was found out that tourists are satisfied if they meet less than 18 jeeps during the whole trip of the Kohora range.

Water Carrying Capacity of China is also studied [5], it was found out that the water resources do not match with the distribution of the population and with the state of economy. Chinese southwestern provinces have a relatively large potential of water carrying capacity. The Yangtze River basin, the Pearl River basin and the eastern coastal areas no longer possess an advantage in the water carrying capacity. Some regions, such as the North China Plain, and Northwestern China, e.g. Xinjiang Uygur Autonomous Region, Ningxia Hui Autonomous Region, and Gansu Province experience severe shortage of water resources, since the water supply system is overloaded.

B. Management Strategies

The concept of carrying capacity is to control the influx of visitors coming into the site for cultural and environmental preservation and protection. However, the economic benefit is left out. To create a balance with these three pillars of sustainable tourism, strategies can be adopted to cope with the limitations of carrying capacity.

According to Calanog [2], the following are strategies can be applied in increasing the carrying capacity of an ecotourism site: (1) Re-design the facilities to accommodate more visitors or activities. (2) Increase the durability of heavily used resources. (3) Improve access to other sites of interest. (4) Introduce additional recreational activities to distribute visitation or concentration in an area.

Zoning is another management tool to implement carrying capacity as proposed by Cruz (2016). This tool is applied mainly to protected areas and there could be four zone categories.

C. Sustainable Tourism

In 1987, adopting the parent concept of sustainable development, the UNWTO defined sustainable tourism as the management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems. It is the tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities. In simple language according to Cruz [1], it means that tourism should be developed without damaging or exhausting finite natural or cultural resources so that those who will come after us may also have opportunity to enjoy them. Sustainable tourism development is supported by the triple bottom line of environmental conservation, social justice and economic viability. Sometimes, this triple bottom line is known as People-Place-Profit, we can also call it Equity-Environment-Economy. It is a form of tourism that respects local culture, protects nature and advocates social responsibility and fair commerce.

For tourism to be sustainable, it is essential for the following elements to be present: (1) informed participation of relevant stakeholders, (2) strong political leadership to ensure wide participation and consensus building, (3) constant monitoring of impacts and adoption of preventive or corrective measures when necessary, (4) maintaining a high level of tourist satisfaction

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and providing meaningful experience to the tourists, and (5) raising the tourists' awareness about sustainability issues and sustainable practices. (Cruz, 2016)

III. METHODOLOGY

A. Research Design

The study used the descriptive-survey method of research. Descriptive survey, according to Calmorin [6], it is suitable wherever the subjects vary among themselves and one is interested to know the extent to which different conditions and situations are obtained among these subjects.

The study only considered the tourists visiting Farm Tourism Sites in Ilocos Norte. Sample size was computed with a 5% margin of error based on the tourist/visitor arrival derived from the tourist destinations.

B. Data Gathering Methods

In gathering primary data, structured survey questionnaire and personal interview was employed. Purposive sampling was used in the selection of respondent. Secondary data such as tourism standards, environmental and social data were derived from published and unpublished literature and document analysis was also conducted.

C. Data Gathering Instrument

This study was conducted using a survey questionnaire adapted from the carrying capacity study of [7]. The questionnaire contained personal information of the visitor; perceived visitor standards and perceived limiting factors occurred at the attraction

D. Analysis of Data

Data gathered were combined and presented in tabular, graphical and textual forms. Data is analyzed according to basic statistical descriptive such as percentages and frequency, average and standard deviation using MS Excel. After deriving the mean or average of data, the Boullon's Carrying Capacity Mathematical Model (BCCMM) was utilized to obtain the real carrying capacity.

The BCCMM was measured at three levels: Basic Carrying Capacity (BCC), Potential Carrying Capacity (PCC) and Real Carrying Capacity (RCC).

First level: Basic Carrying Capacity

$$BCC = \frac{\text{Area used by visitors (i. e., in sq. m.)}}{\text{Average visitor's standard (i. e., in sq. m.)}}$$

Second level: Potential Carrying Capacity

$$PCC = BCC \times RC$$

where:

$$RC = \frac{\text{Total no. of hours a specific area is open for use}}{\text{Average no. of hours an area is used by visitors}}$$

Third level: Real Carrying Capacity

$$RCC = PCC \times \frac{100 - lf_1}{100} \times \frac{100 - lf_2}{100} \times \frac{100 - lf_3}{100} \times \frac{100 - lf_n}{100}$$
$$\text{Limiting Factors } (lf_{1,2,3,\dots,n}) = \frac{M_{(a,b,c,\dots,n)}}{MT} \times 100$$

where:

$M_{(a,b,c,\dots,n)}$ = limiting magnitude of the factor/variable

MT = total magnitude of the factor/variable

E. Ethical Consideration

The involvement of the respondents as sources of information were voluntary. For the farm tourism sites, a request was sent to the owners of the identified farm sites for their approval to conduct the study.

IV. RESULTS AND DISCUSSION

A. Respondent's Profile

According to Calanog [7], parameters for the profile of respondents are psychological consideration, economic consideration and socio-cultural consideration. Psychological consideration includes visitation in group or individual, reason for coming to the

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ecotourism site, type of visit, recreational activities preferred, facility requirements, equipment brought to the site and parking requirements. Economic consideration composes of daily or monthly income, daily or monthly expenditure, specific amount set aside for tourism activities, primary/secondary source of income and general socio-economic status in life – rich, middle class, poor. Lastly, the socio-cultural considerations include demographic profile – age, sex, educational attainment, religion, ethnic group and the like, number of family members or household size, profession or occupation, organizational affiliation and beliefs and practices relative to tourism activities.

This section presents the profile of respondents from two (2) municipalities: Adams and Burgos, where the farm tourism sites were located.

Table 1.1. Profile of the respondents in Adams, Ilocos Norte based on socio cultural considerations

Socio-Cultural Considerations		<i>f</i>	%
Country	Philippines	98	94.23
	Abroad	1	0.96
	No Answer	5	4.81
	<i>Total</i>		<i>100.00</i>
Region	1 - Ilocos Region	84	80.77
	2 - Cagayan Valley	6	5.77
	3 - Central Plains	2	1.92
	7 - Western Visayas	1	0.96
	Cordillera Administrative Region	2	1.92
	National Capital Region	3	2.88
	No Answer	6	5.77
	<i>Total</i>		<i>100.00</i>
City/Town	City	32	30.77
	Town/Municipality	60	57.69
	No Answer	12	11.54
	<i>Total</i>		<i>100</i>
Age	Teenage	24	23.08
	Young Adult	67	64.42
	Middle Aged	12	11.54
	Over 65	1	0.96
	<i>Total</i>		<i>100.00</i>
Sex	Male	47	45.19
	Female	57	54.81
	<i>Total</i>		<i>100.00</i>
Religion	Roman Catholic	54	51.92
	Iglesia Ni Cristo	8	7.69
	Aglipayan	21	20.19
	Born Again	13	12.50
	Others	8	7.69
	<i>Total</i>		<i>100.00</i>

Almost all of the visitors in Adams, Ilocos Norte are from the Philippines and there is a lone tourist from abroad, specifically from Hungary. Majority are local tourists, which means visitors are from the Ilocos Region (80.77%), other tourist came from Region 2 specifically from the province of Cagayan (5.77%), Region 3 specifically coming from Bulacan (1.92%), Region 7 specifically from Negros Oriental (0.96%), NCR specifically from Caloocan (2.88%) and CAR specifically from Abra (1.92%). Local tourist were mostly the visitors of the town since it is not yet fully developed and well promoted to both domestic and international tourists. The largest number of domestic visitors came from Region 2 since the town is bounded east by the provinces of Cagayan and Apayao. 57.69% of the respondents reside in towns or municipalities while 30.77% came from the cities.

The young adult population aged 24 to 35 years old (64.42%) has the most number of respondents followed by teenage group aged 10 to 19 years old (23.08%). Considering the topography of the town which consist primarily of mountainous terrain, it requires physical activities that can lead to adventure tourism. Most of the visitors were female (54.81%) while male composes of nearly half of the respondents with 45.19%. Roman Catholic is the religion of the majority followed by Aglipayan (20.19%),

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Christian or Born Again (12.50%), Iglesia ni Cristo (7.69), other religions (7.69%) were Crusaders Divine Church of Christ (CDCC), Mormons and Baptists.

Table 1.2 Profile of the respondents in Burgos, Ilocos Norte based on socio cultural considerations

Profile		f	%
Country	Philippines	61	91.04
	Abroad	6	8.96
	<i>Total</i>		<i>100.00</i>
Region	1 - Ilocos Region	43	64.18
	3 - Central Plains	2	2.99
	4A – CALABARZON	4	5.97
	5 - Bicol Region	2	2.99
	9 - Zamboanga Peninsula	1	1.49
	National Capital Region	7	10.45
	No Answer	8	11.94
	<i>Total</i>		<i>100.00</i>
City/Town	City	15	22.39
	Town/Municipalty	50	74.63
	No Answer	2	2.99
	<i>Total</i>		<i>100</i>
Age	Teenage	4	5.97
	Young Adult	24	35.82
	Middle Aged	15	22.39
	Over 65	24	35.82
	<i>Total</i>		<i>100.00</i>
Sex	Male	35	52.24
	Female	32	47.76
	<i>Total</i>		<i>100.00</i>
Religion	Roman Catholic	40	59.70
	Iglesia Ni Cristo	2	2.99
	Aglipayan	13	19.40
	Born Again	6	8.96
	Others	6	8.96
	<i>Total</i>		<i>100.00</i>

Same with Adams, majority of visitors in Burgos are from the Philippines (91.04%) while the 8.96% came from the countries of Canada, United States of America and Australia. Majority are local tourist, which means visitors came from Ilocos Region (64.18%) followed by visitors from NCR (10.45%), CALABARZON (5.97%), Central Plains (2.99%), Bicol Region (2.99%) and Zamboanga Peninsula (1.49%). 74.63% came from municipalities or towns and only 22.39% lives in the city.

Compared to the visitors of Adams, majority of visitors in Burgos are not just the young adult (35.82%) but also the over 65 age group (35.82%). Since the farm site is accessible to all age group, it also promotes healthy options of food highlighting the health benefits of dragon fruit can contribute.

As to the sex of visitors, Burgos has the same result with Adams that majority are female (52.24%) while male composes nearly half of the respondents with 47.76%. The result on the sex of visitors in Adams and Burgos is supported with the study of Orpia and Bueno (2017) that majority of Ilocos Norte's visitors to top tourist attractions were female. Roman Catholic is the predominant religion of the respondents (59.70%). Other respondents are Aglipayan (19.40%), Born Again/ Christians (8.96%), Iglesia ni Cristo (2.99%) and others (8.96) are Protestant, Islam and Baptists.

Table 1.3 Profile of the respondents in Adams, Ilocos Norte based on psychological considerations

Psychological Considerations		f	Rank
Planned Activities in Adams	Sightseeing	78	1
	Trekking	70	2
	Adventure Tourism	53	3

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	Food Tourism	43	4
	Fruit Picking	43	4
	Swimming	39	6
	Shopping	28	7
	Camping	12	8
	Others	8	9
Activities Undertaken in Adams	Sightseeing	71	1
	Trekking	58	2
	Adventure Tourism	42	3
	Food Tourism	37	4
	Fruit Picking	37	4
	Swimming	26	6
	Shopping	16	7
	Camping	6	8
	Others	1	9
Psychological Considerations		f	%
Manner of Visit	Individual	92	88.46
	Group	12	11.54
	<i>Total</i>		100
Purpose of Visit	Holiday	53	46.49
	VFR	12	10.53
	Business/Profession	8	7.02
	Health/Medical	1	0.88
	Pilgrimage/Religion	0	0.00
	Education	39	34.21
	Others	1	0.88
	<i>Total</i>		100.00
Preferred Activities in the Site (Cardom's & Inuwayan Farms)	Sightseeing	85	38.29
	Fruit Picking	51	22.97
	Creative tourism	45	20.27
	Food tourism	33	14.86
	Others	8	3.60
	<i>Total</i>		100.00
Psychological Considerations		Ave	Use
Facilities Required in the Site	Comfort Room	2	<i>for male and female</i>
	Benches	3	
	Picnic Area	2	
Equipment Brought per person	Cellphone/Smartphone	1	for documentation and communication
	Camera	1	for documentation

Multiple Answers

Table 1.3 present the profile of the respondents in Adams based on psychological considerations. The respondents top 1 planned activities and activities undertaken in Adams is Sightseeing, followed by Trekking and engaging in Adventure Tourism. Other activities which were not listed abovementioned is on work related or data gathering of some researchers. 88.46% of the respondents are Frequent Individual Travelers (FIT) while 11.54% are on group tour. The main reason of their visit is Holiday and Recreation (46.69%) followed by Education (34.21%). Still, majority of the visitors in the farm sites prefers to have sightseeing (38.29%). According to the respondents, the average required number of comfort rooms is 2 used for male and female with maximum consideration of up to 5 comfort rooms, at least 3 benches in each site with maximum consideration 10 benches per site and 2 picnic areas with maximum consideration of 5 to 10 picnic areas in each site. As to the equipment the respondents

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brought, average of one (1) mobile phone with maximum 10 mobile phones brought in the site and one (1) camera used for communication and documentation of their visit.

Table 1.4 Profile of the respondents in Burgos, Ilocos Norte based on psychological considerations

Psychological Considerations		<i>f</i>	Rank
Planned Activities in Adams	Sightseeing	53	1
	Food Tourism	28	2
	Adventure Tourism	21	3
	Shopping	15	4
	Fruit Picking	14	5
	Trekking	11	6.5
	Camping	11	6.5
	Swimming	9	8
Others	8	9	
Activities Undertaken in Adams	Sightseeing	53	1
	Food Tourism	23	2
	Shopping	18	3
	Adventure Tourism	17	4
	Fruit Picking	14	5
	Swimming	11	6
	Camping	8	7
	Swimming	7	8
Others	3	9	
Psychological Considerations		<i>f</i>	%
Manner of Visit	Individual	6	8.82
	Group	62	91.18
	<i>Total</i>		100
Purpose of Visit	Holiday	36	48.65
	VFR	14	18.92
	Business/Profession	10	13.51
	Health/Medical	2	2.70
	Pilgrimage/Religion	1	1.35
	Education	11	14.86
	Others		0.00
<i>Total</i>		100.00	
Preferred Activities in REF MAD Dragon Fruit Farm	Sightseeing	52	42.28
	Fruit Picking	14	11.38
	Creative tourism	16	13.01
	Food tourism	23	18.70
	Shopping	14	11.38
	Adventure Tourism	1	0.81
	Agritourism	1	0.81
	Others	2	1.63
<i>Total</i>		100.00	
Psychological Considerations		Ave	Use
Facilities Required in the Site	Comfort Room	3	
	Benches	7	
	Picnic Area	4	
Equipment Brought per person	Cellphone/Smartphone	2	for documentation and communication
	Camera	1	for documentation
	Drone	1	

Multiple Answers

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The same with Adams, respondents in Burgos ranks sightseeing as top 1 planned activities and activities undertaken in the site. In Burgos, food tourism ranks number 2 for both planned and undertaken activities. While adventure tourism ranks 3 in the planned activities, when asked if what activities were undertaken in the site shopping ranks number 3. Other activities which were not listed in the table that visitors plan to do and activities that were undertaken during the visit were for Agritourism, Lakbay Aral, Mountain Biking and Wine tasting.

As to the purpose of visit, most respondents are on holiday and leisure (48.65%) followed by Visiting Friends and Relatives (18.92%). Most preferred activity in the farm site is sightseeing (42.28%) followed by Food Tourism (18.70%) and shopping & fruit picking (both 11.38%). These activities in REF MAD Dragon fruit farm in Burgos were the highlights of visiting the farm. Various delicacies and dishes made out of dragon fruit is served and can also bring home as *pasalubong*.

As to the facility requirement, the average number of comfort rooms required is three (3) with a maximum consideration of ten (10) comfort rooms in the site. Average of seven (7) benches in the site with maximum consideration of twenty (20) benches and Average of four (4) picnic area with maximum consideration of 15 picnic areas.

Visitors have brought an average of two (2) mobile phones with five (5) as maximum number of phones brought to the site, one (1) camera with five (5) as maximum number of cameras brought to the site and (1) drone for the purpose of communication and documentation.

Table 1.5 Profile of the respondents in Adams, Ilocos Norte based on economic considerations.

Economic Considerations		F	%
Employed in	Private	22	21.15
	Government	22	21.15
	Student	50	48.08
	Retired	3	2.88
	Unemployed	7	6.73
	<i>Total</i>		100.00
Category of Employment	Officials of Government/Corporate Manager	1	2.13
	Managing Proprietors and Supervisors	3	6.38
	Professionals	15	31.91
	Technicians and Associated Professionals	5	10.64
	Clerks	3	6.38
	Service, Shops, Market Workers	2	4.26
	Farmer/Forestry/Fisherman	2	4.26
	Traders and related workers	1	2.13
	Plant/Machine Operators	0	0.00
	Laboratory/Unskilled Workers	0	0.00
	Entertainment	0	0.00
	No answer	15	31.91
	<i>Total</i>		100.00
Monthly Income	below 10,000	34	48.57
	10,000 - 30,000	25	35.71
	31,000 - 60,000	9	12.86
	61,0000 - 90,000	2	2.86
	91,000 - 110,000	0	0.00
	110,000 and above	0	0.00
	<i>Total</i>		100.00

Economic considerations are presented in table 1.5. Majority of the respondents were students (48.08%) followed by working class on both private and government organization both 21.15%. Majority of the working class are professionals (31.91%) Majority of the respondents stated that their monthly income is below 10,000PHP (48.57%) while 35.71% of the respondents receives 10,000PHP to 30,000PHP monthly income.

It is also important to note that some respondents shared their monthly expenditures on food, clothing, transportation, health and education. The average monthly expenditure on food is Php5,600; clothing Php2,500; education 3,713 and; transportation Php2,476. Moreover, the average Length of Stay (ALOS) in Ilocos Norte of the domestic and international visitor as well as the local tourist’s ALOS in Adams is 2 days and 1 night.

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Table 1.6 Profile of the respondents in Burgos, Ilocos Norte based on economic considerations.

Economic Considerations		f	%
Employed in	Private	20	29.85
	Government	16	23.88
	Student	6	8.96
	Retired	12	17.91
	Unemployed	10	14.93
	No answer	3	4.48
	<i>Total</i>		100.00
Category of Employment	Officials of Government/Corporate Manager	5	9.62
	Managing Proprietors and Supervisors	2	3.85
	Professionals	10	19.23
	Technicians and Associated Professionals	2	3.85
	Clerks	2	3.85
	Service, Shops, Market Workers	3	5.77
	Farmer/Forestry/Fisherman	8	15.38
	Traders and related workers	0	0.00
	Plant/Machine Operators	0	0.00
	Laboratory/Unskilled Workers	20	38.46
	Entertainment	0	0.00
	No answer	0	0.00
	<i>Total</i>		100.00
Monthly Income	below 10,000	22	41.51
	10,000 - 30,000	17	32.08
	31,000 - 60,000	10	18.87
	61,0000 - 90,000	2	3.77
	91,000 - 110,000	0	0.00
	110,000 and above	2	3.77
	<i>Total</i>		100.00

In Burgos, majority of the respondents were employed in private companies (29.85%) followed by government employed (23.88%). Among these working group majority of their occupation falls in the category of laboratory/unskilled workers. Monthly income of the majority of the respondents in Burgos are the same results with that of Adams which are below 10,000PHP (41.51%) followed by 32.08% of the respondents who receives 10,000PHP to 30,000 monthly incomes.

B. Tourist Standards

Inuwayan Wine Shop or also known as Bugnay Farm is one of the first wineries in Adams with a total land area of 700 sq.m. It is open in operation from seven o'clock (7:00) in the morning until five o'clock (5:00) in the afternoon. The Bugnay farm is open for all tourist who wish to visit the plantation area located at the back of the wine shop.

Cardom's Strawberry Farm is a 2 hectares' farm of various fruit and vegetable but this farm is famous in Adams because of Strawberries. It is open for tourists from seven o'clock (7:00) in the morning until five o'clock (5:00) in the afternoon with an entrance fee of Php20.00 per person. Tourists can experience fruit picking and tasting. Aside from Strawberries, Cardom's also plant various Baguio vegetables such as Sayote, Lettuce, Turmeric, different kinds of herbs etc. and seasonal fruits such as dragon fruit, watermelon, rozelle to name a few.

REFMAD Dragon fruit farm is a 20 hectares' dragon fruit plantation located in the town of Burgos, Ilocos Norte. It is the first dragon fruit farm and processing facility in Northern Luzon. It is open from eight o'clock (8:00) in the morning to five o'clock (5:00) in the afternoon. The farm became popular when people learned of its nutritional values and wonders most especially for constipation. Government agencies became more involved seeing the opportunities for more researches and studies

Table 2. Standard requirement of visitors in three farm sites

Space Requirement		Ave
Inuwayan	Per Tourist	2.56 m ²
	Per Group	11.25 m ²
	Number of pax in a group	12 pax
Cardom's	Per Tourist	2.52 m ²

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	Per Group	11.45 m ²
	Number of pax in a group	13pax
REFMAD	Per Tourist	9.72 m ²
	Per Group	38.41 m ²
	Number of pax in a group	6pax
Number of Hours Spent		Ave
Inuwayan	Sightseeing	79 minutes
	Fruit Picking/Harvesting	45 minutes
	Wine Tasting/ Food tourism	45 minutes
	Shopping	40 minutes
	Picture Taking	44 minutes
	<i>Overall</i>	50 minutes
Cardom's	Sightseeing	48 minutes
	Fruit Picking/Harvesting	44 minutes
	Wine Tasting/ Food tourism	49 minutes
	Shopping	48 minutes
	Picture Taking	35 minutes
	<i>Overall</i>	45 minutes
REFMAD	Overall	3.13 hours

As presented in table 2, the space requirement per visitor as FIT in Inuwayan is 2.56 m², in Cardom's is 2.52m² and in REFMAD is 9.72 m². As to group visits, the space requirement per visitor in the group in Inuwayan is 11.25m² for a group of 12 members, in Cardom's is 11.45m² for a group of 13 members and in REFMAD 38.41m² per group of 6 members. The average number of minutes spent in Inuwayan is 50 minutes, in Cardom's 45 minutes and in REFMAD is 3.13 hours.

C. Limiting Factors

Climate

While Ilocos Norte is considered a dry and arid place, according to the town baseline of the municipality of Adams, it differentiates itself from coastal towns as far as weather and climate is concerned. Adams has Type III climate while nearby Ilocos Norte towns have Type I climate.

It is low temperature, closely resembling that of Baguio City, the summer capital of the Philippines; best characterizes the climate of Adams. The wet and dry seasons are present in the municipality with the dry season being pronounced from March to June.

The wet season begins in July and ends in October. The frequency of rainfall is placed to 15 to 21 days per month during the rainy period. From November to February, the temperature of Adams drops to its lowest level. The cool climate has earned for Adams the distinction of the "Little Baguio of the North".

Typhoons often pass through Adams and bring strong gusts of wind and rain. Heavy rain may still fall in Adams, even if the typhoon has gone past the town and moves towards the sea. The mountains funnel the cool northern air with the warm moist air, producing the heavy downpour. The high mountain ranges on the east and west of the town protect Adams from the strongest and most destructive winds. Relative humidity is 78%.

Typhoons

According to Galacgac, Acosta and Alibuyog [8] in their study on Variability of Rainfall and Temperature in Ilocos Norte, it was concluded that annually, the average number of typhoons crossing and affecting Ilocos Norte was 7. However, the average typhoon during period 2 had increased to 9 typhoons as compared to that of Period 1 which was 5. Average data from 1976 to 1990 (standard base period for most climate change studies defined by the World Meteorological Organization) considered Period 1, 1991 – 2010, Period 2, and 1976-2010 were compared. For the year 2011-2017, PAG-ASA recorded an average of five (5) typhoons for the past 7 years.

Tourism Carrying Capacity of Inuwayan (Bugnay) Farm

First level: Basic Carrying Capacity

$$BCC = \frac{\text{Area used by visitors (i.e., in sq.m.)}}{\text{Average visitor's standard (i.e., in sq.m.)}}$$

$$BCC = \frac{700 \text{ sq. m}}{2.56 \text{ sq. m.}}$$

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$$BCC \text{ (individual)} = 273.44 \text{ or } 273 \text{ pax per day}$$

$$BCC = \frac{700 \text{ sq. m}}{11.25 \text{ sq. m.}}$$

$$BCC \text{ (group)} = 62.22 \text{ or } 62 \text{ pax per day per group of 12}$$

Second level: Potential Carrying Capacity

$$PCC = BCC \times RC$$

$$\text{where: } RC = \frac{\text{Total no. of hours a specific area is open for use}}{\text{Average no. of hours an area is used by visitors}}$$

$$RC = \frac{540 \text{ minutes}}{50 \text{ minutes}}$$

$$RC = 10.8$$

$$PCC = 273 \text{ pax} \times 10.8 \text{ rc}$$

$$PCC \text{ (individual)} = 2948.4 \text{ or } 2948 \text{ pax per day}$$

$$PCC = 62 \text{ pax} \times 10.8 \text{ rc}$$

$$PCC \text{ (group)} = 669.6 \text{ or } 670 \text{ pax}$$

Third level: Real Carrying Capacity

$$RCC = PCC \times \frac{100 - lf_1}{100} \times \frac{100 - lf_2}{100} \times \frac{100 - lf_3}{100} \times \frac{100 - lf_n}{100}$$

$$\text{Limiting Factors } (lf_{1,2,3,\dots,n}) = \frac{M_{(a,b,c,\dots,n)}}{MT} \times 100$$

Where: $M_{(a,b,c,\dots,n)}$ = limiting magnitude of the factor/variable

MT = total magnitude of the factor/variable

Lf 1: Excessive sunshine

Six hours per day for 5 months (January to May)

5 months x 30 days = 150 days

M1 = 150 days x 6 hours = 900 hours of excessive sunshine

Mt = 365 days per year x 24 hours = 8,760

$$Lf1 = \frac{900 \text{ hours of excessive sunshine}}{8,760} \times 100$$

$$Lf1 = 10.27$$

Lf 2: Tropical Cyclone

5 typhoons for the past 7 years (2011-2017); 5 days estimated excessive rain and wind

M2 = 25 days x 12 hours = 300 hours

Mt = 365 days per year x 24 hours = 8,760

$$Lf2 = \frac{400 \text{ hours of tropical cyclone}}{8,760} \times 100$$

$$Lf2 = 3.42$$

Lf 3: Climate (Wet Season)

Wet season in Adams from July to October

15 to 21 days a month of rainy season

M3 = 21 days x 4 months x 8 hours = 672 hours

Mt = 365 days per year x 24 hours = 8,760

$$Lf3 = \frac{672 \text{ hours of rain}}{8,760} \times 100$$

$$Lf3 = 7.67$$

Lf 4 : Available CRs

M4 = 1 available CR

Mt = 5 CRs maximum required by visitors

Carrying Capacity of Farm Tourism Sites: Basis for Ilocos Norte's Sustainable Development Plan

$$Lf4 = \frac{1}{5} \times 100$$

$$Lf4 = 20$$

Lf 5: Available benches

M5 = 2 available benches

Mt = 10 benches maximum required by visitors

$$Lf5 = \frac{2}{10} \times 100$$

$$Lf5 = 20$$

Lf 6: Available Picnic area/ hut

M6 = 1 available picnic hut

Mt = 10 picnic area or huts maximum required by visitors

$$Lf6 = \frac{1}{10} \times 100$$

$$Lf6 = 10$$

$$RCC = 2948 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 7.67}{100} \times \frac{100 - 20}{100} \times \frac{100 - 20}{100} \times \frac{100 - 10}{100}$$

$$RCC = 2948 \times 0.8973 \times 0.9658 \times 0.9233 \times 0.8 \times 0.8 \times 0.9$$

$$\underline{RCC (individual) = 1,359 \text{ pax per day}}$$

$$RCC = 670 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 7.67}{100} \times \frac{100 - 20}{100} \times \frac{100 - 20}{100} \times \frac{100 - 10}{100}$$

$$RCC = 670 \times 0.8973 \times 0.9658 \times 0.9233 \times 0.8 \times 0.8 \times 0.9$$

$$\underline{RCC (group) = 309 \text{ pax per day, group of 12}}$$

TOURISM CARRYING CAPACITY OF CARDOM'S (STRAWBERRY) FARM

First level: Basic Carrying Capacity

$$BCC = \frac{\text{Area used by visitors (i.e., in sq.m.)}}{\text{Average visitor's standard (i.e., in sq.m.)}}$$

$$BCC = \frac{20,000 \text{ sq.m.}}{2.52 \text{ sq.m.}}$$

$$BCC (individual) = 7,936.6 \text{ or } 7,937 \text{ pax per day}$$

$$BCC = \frac{20,000 \text{ sq.m.}}{11.45 \text{ sq.m.}}$$

$$BCC (group) = 1,746.7 \text{ or } 1,747 \text{ pax per day per group of 13}$$

Second level: Potential Carrying Capacity

$$PCC = BCC \times RC$$

$$\text{where: } RC = \frac{\text{Total no.of hours a specific area is open for use}}{\text{Average no.of hours an area is used by visitors}}$$

$$RC = \frac{540 \text{ minutes}}{45 \text{ minutes}}$$

$$RC = 12$$

$$PCC = 7,937 \text{ pax} \times 12 \text{ rc}$$

$$PCC (individual) = 95,244 \text{ pax per day}$$

$$PCC = 1,747 \text{ pax} \times 12 \text{ rc}$$

$$PCC (group) = 20,964 \text{ pax per day}$$

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Third level: Real Carrying Capacity

$$RCC = PCC \times \frac{100 - lf_1}{100} \times \frac{100 - lf_2}{100} \times \frac{100 - lf_3}{100} \times \frac{100 - lf_n}{100}$$
$$\text{Limiting Factors } (lf_{1,2,3,\dots,n}) = \frac{M_{(a,b,c,\dots,n)}}{MT} \times 100$$

where:

$M_{(a,b,c,\dots,n)}$ = limiting magnitude of the factor/variable

MT = total magnitude of the factor/variable

Lf 1: Excessive sunshine

Six hours per day for 5 months (January to May)

5 months x 30 days = 150 days

M1 = 150 days x 6 hours = 900 hours of excessive sunshine

Mt = 365 days per year x 24 hours = 8,760

$$Lf1 = \frac{900 \text{ hours of excessive sunshine}}{8,760} \times 100$$
$$Lf1 = 10.27$$

Lf 2: Tropical Cyclone

5 typhoons for the past 7 years (2011-2017); 5 days estimated excessive rain and wind

M2 = 25 days x 12 hours = 300 hours

Mt = 365 days per year x 24 hours = 8,760

$$Lf2 = \frac{300 \text{ hours of tropical cyclone}}{8,760} \times 100$$
$$Lf2 = 3.42$$

Lf 3: Climate (Wet Season)

Wet season in Adams from July to October

15 to 21 days a month of rainy season

M3 = 21 days x 4 months x 8 hours = 672 hours

Mt = 365 days per year x 24 hours = 8,760

$$Lf3 = \frac{672 \text{ hours of rain}}{8,760} \times 100$$
$$Lf3 = 7.67$$

Lf 4 : Available CRs

M4 = 2 available CR

Mt = 5 CRs maximum required by visitors

$$Lf4 = \frac{2}{5} \times 100$$
$$Lf4 = 40$$

Lf 5: Available benches

M5 = 1 available bench

Mt = 10 benches maximum required by visitors

$$Lf5 = \frac{1}{10} \times 100$$
$$Lf5 = 10$$

Lf 6: Available Picnic area/ hut

M6 = not available picnic hut

Mt = 10 picnic area or huts maximum required by visitors

$$Lf6 = \frac{0}{10} \times 100$$

$$Lf6 = 0$$

$$RCC = 95,244 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 7.67}{100} \times \frac{100 - 40}{100} \times \frac{100 - 10}{100} \times \frac{100 - 0}{100}$$

$$RCC = 95,244 \times 0.8973 \times 0.9568 \times 0.9233 \times 0.6 \times 0.9 \times 1$$

$$RCC \text{ (individual)} = \mathbf{41,148 \text{ pax per day}}$$

$$RCC = 20,964 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 7.67}{100} \times \frac{100 - 40}{100} \times \frac{100 - 10}{100} \times \frac{100 - 0}{100}$$

$$RCC = 20,964 \times 0.8973 \times 0.9658 \times 0.9233 \times 0.6 \times 0.9 \times 1$$

$$RCC \text{ (group)} = \mathbf{9,057.1 \text{ or } 9,057 \text{ pax per day, group of } 13}$$

TOURISM CARRYING CAPACITY OF REFMAD DRAGON FRUIT FARM

First level: Basic Carrying Capacity

$$BCC = \frac{\text{Area used by visitors (i.e., in sq.m.)}}{\text{Average visitor's standard (i.e., in sq.m.)}}$$

$$BCC = \frac{20,000 \text{ sq.m.}}{9.8 \text{ sq.m.}}$$

$$BCC \text{ (individual)} = \mathbf{2,040.816 \text{ or } 2,041 \text{ pax per day}}$$

$$BCC = \frac{20,000 \text{ sq.m.}}{38.41 \text{ sq.m.}}$$

$$BCC \text{ (group)} = \mathbf{520.70 \text{ or } 521 \text{ pax per day per group of } 6}$$

Second level: Potential Carrying Capacity

$$PCC = BCC \times RC$$

$$\text{where: } RC = \frac{\text{Total no. of hours a specific area is open for use}}{\text{Average no. of hours an area is used by visitors}}$$

$$RC = \frac{12 \text{ hours}}{8 \text{ hours}}$$

$$RC = 1.5$$

$$PCC = 2,041 \text{ pax} \times 1.5 \text{ rc}$$

$$PCC \text{ (individual)} = 3,061.5 \approx 3,062 \text{ pax per day}$$

$$PCC = 521 \text{ pax} \times 1.5 \text{ rc}$$

$$PCC \text{ (group)} = 782 \text{ pax per day}$$

Third level: Real Carrying Capacity

$$RCC = PCC \times \frac{100 - lf_1}{100} \times \frac{100 - lf_2}{100} \times \frac{100 - lf_3}{100} \times \frac{100 - lf_n}{100}$$

$$\text{Limiting Factors } (lf_{1,2,3,\dots,n}) = \frac{M_{(a,b,c,\dots,n)}}{MT} \times 100$$

where:

$M_{(a,b,c,\dots,n)}$ = limiting magnitude of the factor/variable

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MT = total magnitude of the factor/variable

Lf 1: Excessive sunshine

Six hours per day for 5 months (January to May)

5 months x 30 days = 150 days

M1 = 150 days x 6 hours = 900 hours of excessive sunshine

Mt = 365 days per year x 24 hours = 8,760

$$Lf1 = \frac{900 \text{ hours of excessive sunshine}}{8,760} \times 100$$
$$Lf1 = 10.27$$

Lf 2: Typhoon

5 typhoons for the past 7 years (2011-2017); 5 days estimated excessive rain and wind

M2 = 25 days x 12 hours = 300 hours

Mt = 365 days per year x 24 hours = 8,760

$$Lf2 = \frac{300 \text{ hours of excessive rain and wind}}{8,760} \times 100$$
$$Lf2 = 3.42$$

Lf 3: Available CR

M3 = 4 CRs are available

Mt = 10 CRs required by visitors

$$Lf3 = \frac{4}{10} \times 100$$
$$Lf3 = 40$$

$$RCC = 95,244 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 40}{100}$$
$$RCC = 3,062 \times 0.8973 \times 0.9658 \times 0.6$$

$$\underline{RCC \text{ (individual)} = 1592 \text{ pax per day}}$$

$$RCC = 782 \times \frac{100 - 10.27}{100} \times \frac{100 - 3.42}{100} \times \frac{100 - 40.00}{100}$$

$$RCC = 782 \times 0.8973 \times 0.9658 \times 0.6$$

$$\underline{RCC \text{ (group)} = 407 \text{ pax per day, group of 6}}$$

From the computation of Carrying Capacity using Boullon's Carrying Capacity Mathematical Model, researchers were able to derive the suggested maximum number of visitors for the farms.

In Adams, the Inuwayan or Bugnay Farm can accommodate a total of 1,359 persons per day on individual visit or as Frequent Independent Traveler (FIT) and 309 persons per day on group visit with 12 members per group. While the strawberry farm can accommodate 41,148 persons per day on individual visit or Frequent Independent Traveler (FIT) and 9,057 visitors per day on group visit.

In Burgos, the REFMAD Dragon Fruit Farm can accommodate a total of 1,592 persons per day on individual visit or as FIT and 407 persons on group visit with 6 members per group.

As of today, according to the farm owners and data on tourist arrivals from the Provincial Tourism Office, the number of people coming into the town or sites has not yet reached the maximum allowed number of visitors.

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MANAGEMENT STRATEGIES

Since the farms in Adams and Burgos, has not extensively promote their place as tourism destination, here are some management strategies that can be applied to increase the carrying capacity and make the visitors visit more comfortable:

Increase durability of heavily used resources [2]. Benches can be added especially to the farm sites in Adams. Considering the lack of transportation available for transfers in the town, visitors tend to walk from the poblacion going to sites. Comfort Rooms can be improved to the three (3) farm sites that includes also provision of sufficient water supply. From the interviews, one of the problems visitors encountered is the unmaintained CRs not just in site but in the town and province as a whole. Providing benches and maintained comfort rooms can make their visit more comfortable. Other facilities on the site should also be maintained as an added attraction to the tourists [9] [10].

Improve access to other sites of interest. One possible way of doing this is by installing covered walks so that even during hot and rainy seasons, access to an area is not denied and therefore, visitors are not drastically affected. (Calanog, 2015)

Introduce additional recreational activities to distribute visitation or concentration in an area. In Adams, a tour itinerary can be formulated by the municipal tourism office and thus educate the *habal habals* and sites of interest of a unified tour itinerary so that visitors piling up to take their turn for wine tasting or fruit picking will be avoided. To specific farm sites, creative tourism can be introduced to visitors. Creative tourism is a form of tourism where visitors can experience the craft and process of making a local product. In Cardom's where Turmeric is produced and processed as wine or powder, visitors can join in pounding the turmeric using a large mortar and pestle used by the locals. REF MAD Dragon Fruit Farm can also showcase their way of making delicacies and dishes out of Dragon Fruit Scraps to add other activities that is already available in the site.

Providing *Rent-a-Bike* in the town of Adams. Majority of the respondents when asked of the problems encountered is lack of transfers during tours. The Local Government Unit can start this Income Generating Project to solve this problem encountered by the visitors. While it is true that Adams offers adventure tourism through trekking, riding a bike is still considered physical activity and will not alter its image to visitors.

Accreditation as Farm Tourism Sites is highly recommended. Both from the Department of Tourism and some private organization that can make reviews to the farm site. Being accredited gives the farm more competitive advantage, image and branding among other sites in Ilocos Norte.

V. CONCLUSION AND RECOMMENDATION

Majority of the visitors in the farm sites of Ilocos Norte are local tourists which mean visitors are from the Ilocos Region with a mix of young adult and senior citizen age group. Since the different farm tourism sites are located in different municipalities with unique topography, young adults are the market in Adams while the over 65 age group is the market of the Dragon Fruit Farm. The main reason of visit is for Leisure, holiday and Recreation although it is important to note that education as a reason for visit is notable since both sites are good venue for research and studies in different field. Majority of the visitors preferred and undertake sightseeing as their activities in the site, bringing with them an average of one to two mobile phones and one camera for the purpose of communication and documentation. Visitors also requires an average of two comfort rooms to each site and ten benches and picnic areas. Majority of the visitors are working class that are either professionals or unskilled labor with a monthly income of below Php10,000. At an average, visitors stay in the farm from 45 minutes to almost whole day and their average space requirement varies from 2.56m² to 9.79m² for individual travelers and 11.25m² to 38.41m² space requirement for group travels. Limitations in visiting the site includes excessive sunshine, climate, typhoon and availability of facilities in the sites. With the following considerations, the real carrying capacity of each site were determined. Inuwayan/Bugnay Farm can accommodate a maximum of 1,339 persons per day on FIT and 304 persons per day for group travel with 12 members per group. While Cardom's/Strawberry Farm can accommodate a maximum 40,565 visitors per day on FIT and 8,928 visitors per day for group with 13 members per group. Lastly, REF MAD Dragon Fruit Farm can accommodate 1,599 visitors per day on FIT and 408 visitors per day for group with 6 members per group. To increase carrying capacity and arrivals in the sites various management strategies were recommended: 1) Increase the durability of heavily used resources, 2) improve access to other sites of interest, 3) Introduce additional recreational activities, 4) Provide rent-a-bike and 5) Farm accreditation.

In conclusion, as of these days, the maximum number allowed in each site is not yet really reached, however, with this suggested carrying capacity on each site the LGU and owners of farms can come up with a development that will not compromise the environment, economy, and culture.

It is therefore recommended that the farm site should consider the suggested management strategies proposed by the research and for the provincial tourism office to also conduct in identifying the tourism carrying capacity of most visited sites in Ilocos for sustainable tourism and product development.

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REFERENCES

- 1) Cruz, R.G. (2016). *Tourism Impacts and Sustainability* First Edition. Rex Bookstore, Manila, Philippines
- 2) Calanog, L.A. (2015). *A Manual on Computing Carrying Capacity of Ecotourism Sites in Protected Areas*. Ecosystem Research and Development Bureau, Department of Environment and Natural Resources, College, Laguna, Philippines
- 3) Farahani, B., Taleshi, A. & Laleh, N. (2014). The Assessment of the Quality and Socio-Cultural Carrying Capacity of Urban Tourism Based on the Behavioral Patterns of the Tourists and Host Community (Case Study: Ramsar, Iran). *International Journal of Science & Interdisciplinary Research*, Vol. 3, pp. 239-254. Retrieved from indianresearchjournals.com
- 4) Masum, K., Al Mamun, A; Rahman, Z., Rahman, M., Newaz, S. & Redowan, M. (2013). Ecotourism Carrying Capacity and the Potentiality of Safari Park of Bangladesh. *Journal of Forest Science*. Vol.29, No. 4, pp292-299.
- 5) Liu, J., Dong, S.& Mao,Q. (2012). Comprehensive evaluation of the water resource carrying capacity for China. *Geography and Natural Resources*. Vol 33, No.1, pp. 138-145. DOI <https://doi.org/10.1134/S1875372812010155>
- 6) Calmorin, L.P & Calmorin, M.A. (2005). *Methods of Research and Thesis Writing*. 1st Edition. (Reprint) Manila: Rex Books Store
- 7) Calanog, L.A. 2015. *A Manual on Computing Citation Carrying Capacity of Ecotourism Sites in Protected Areas*. Ecosystems Research and Development Bureau, Department of Environment and Natural Resources, College, Laguna, Philippines.
- 8) Galacgac, E, Acosta, C & Alibuyog, N. (2013) Variability of Rainfall and Temperature in Ilocos Norte, Philippines. *MMSU Science and Technology Journal*. Vol. 3 No.2. pp.80
- 9) Designing Alternative Tourism Practices for Kaziranga National Park based on Psychological Carrying Capacity. Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/39995/5/05_abstract.pdf
- 10) Market Segmentation: Age, Gender, Education and Occupation & Ethnic Background. (2008, January 21) Retrieved from <http://atlskillzmarket101.blogspot.com/2008/01/market-segmentation-age-gender.html>



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Active Debate Learning Model in Strengthening Critical Thinking Skills for Class IX students



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ABSTRACT: The ability to think critically is an important component in the world of education, especially for students as the younger generation should have the ability to think critically as a capital to face the challenges of the world in the future. This study aims to determine the strengthening of critical thinking skills of grade IX students through an active debate learning model on Pancasila and citizenship education subjects at Muhammadiyah Junior High School Special Program Kottabarat Surakarta. This study uses a qualitative approach with data collection through observation, interviews and documentation. The subjects of this study were teachers of Pancasila and citizenship education and grade IX students. The results showed that the application of the active debate learning model in Pancasila and citizenship education subjects was able to strengthen the critical thinking skills of grade IX students, indicated by the students' ability to understand the material, analyze, speak, and conclude a problem.

KEYWORDS: Active debate, Critical thinking, Civic education, Grade IX students

I. INTRODUCTION

Education is one of the processes of humanizing humans, so education is a very important human need in the present and the future, quality education is a necessity for everyone to gain knowledge and form a good personality and character. One of the characteristics of quality education is to produce a generation and quality human resources. Through education, it is expected to be able to give birth to a generation of intellectually intelligent and characterful nations. Education is a conscious and planned effort in creating a learning atmosphere and learning process so that students are actively able to develop their potential in order to have religious spiritual strength, personality, intelligence and noble character. Education is a conscious and planned effort in creating a learning atmosphere and learning process so that students are actively able to develop their potential in order to have religious spiritual strength, personality, intelligence and noble character.

The learning process does not only strengthen knowledge, but must be equipped with the development of critical, creative and character thinking. Learning activities in schools, teachers who play an important role in determining the direction of student learning, teachers as facilitators must be able to generate enthusiasm and motivation for student learning, because the duties and responsibilities of teachers are to be able to manage learning effectively, efficiently and dynamically.

Learning Pancasila and citizenship education has an important function, namely exposing students to experiences in school about a comprehensive view of the function of citizenship as a right and responsibility in a democratic atmosphere. Citizenship education is not only play a role in the formation of good citizens, but students are expected to have information literacy and critical citizenship skills (Jerome, 2012). Citizenship education in Australia is included in the formal curriculum called civic and citizenship which is part of the humanities and social sciences (Kerr, 2002). In addition, citizenship education in the UK is included in the national curriculum as one of five cross-curricular themes and is a compulsory subject for secondary level students (Biesta, 2011).

Critical thinking skills for students are very important and needed to be able and skilled in observing various kinds of problems in the era of globalization, so that they can solve a problem and be able to apply the knowledge gained at school and outside of school. Critical thinking is very important so that it becomes a major goal in education (Johnson, 2014). Too little education in schools teaches students to be able to develop critical thinking skills in depth, schools only provide the right answers without encouraging students to develop their minds and come up with new ideas (Santrock, 2011). Critical thinking is an important component in civic education, the cognitive skills that must be taught are to think critically (Joe, 2017). Critical thinking is different

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from intelligence, critical thinking is a thinking skill that can be improved by everyone. Students are able to think critically is an ability to solve a problem in a different way so that students are able to compete and work together with a team.

However, the reality is that many teaching models in schools tend to focus on knowledge content without paying much attention to problem solving in real life, therefore teachers must pay attention to teaching and evaluating critical thinking in a more realistic context. Thus, students currently lack the ability to think critically, because they are rarely trained or applied both in the world of formal (school), informal (family) and non-formal (community) education. Based on the results of the pre-research conducted by the researcher, that grade IX students at the Muhammadiyah Junior High School Special Program for Kottabarat are still experiencing various obstacles in critical thinking, first, students do not have the ability to process sentences well, so students are not confident in conveying arguments. Second, students tend to be passive during the learning process, because the learning process is still centered on the teacher so that students are less actively involved. Third, teachers still often use the lecture method in the learning process. Fourth, teachers have difficulty determining media or interesting learning models according to the material and can strengthen students' critical thinking skills. So that the current thinking patterns of students tend to be weak in analyzing an existing problem. The low critical thinking ability of students in the learning process of Pancasila and citizenship education can affect learning outcomes and student activity in learning activities.

Schools have a very important role in strengthening students' critical thinking skills through civic education which is internalized through learning activities in schools, the goal is that students not only have competence in terms of civic knowledge, but also the ability to participate. Therefore, to strengthen the quality of civic education learning, it is necessary to have an aspect of change in the learning process in the classroom. Learning in teacher-centered classrooms must be changed to student-centered so that it can build enthusiasm and motivation for student learning.

Starting from the various problems that occur in the learning process, especially Pancasila and citizenship education subjects, it is necessary to find the right solution, namely the active debate learning model. The active debate learning model is seen as able to strengthen students' critical thinking skills, because this learning model is able to provide opportunities for students to be able to interact directly with their friends according to their thoughts when talking to their friends. The learning model can be interpreted as a conceptual framework or learning activity that is used as a guide in carrying out direct learning activities. The active debate learning model is one of the most important learning models to strengthen students' academic abilities (Trinova et al 2022). The active debate learning model is an activity of opinion or argumentation between two or more parties, carried out either individually or in groups in discussing a problem.

II. METHOD

The approach in this study uses a qualitative approach. The scope of this research is to strengthen students' critical thinking skills through an active debate learning model for class IX students. The research began by conducting a preliminary study on the learning process and critical thinking skills of grade IX students and teachers of Pancasila and Civic Education for the academic year 2021/2022 at the Muhammadiyah Junior High School Special Program for Kottabarat Surakarta in September 2022. The subjects of this study were Civic education students and teachers about the problem. critical thinking skills of students in the 2021/2022 academic year at the Muhammadiyah Junior High School Special Program for Kotatabarat Surakarta. Determination of research subjects was carried out by purposive sampling because in qualitative research there was no research sample. The results of the study were analyzed using interactive techniques with the stages of collecting data, reducing data, presenting funds and drawing conclusions. This approach is used so that the learning process that is being carried out and ongoing can be described clearly. Collecting data in this study through interviews with Civic education teachers and junior high school students in class IX as well as observing during the learning process that applies an active debate learning model.

III. RESULTS AND DISCUSSION

The results of the analysis of strengthening students' critical thinking skills through an active debate learning model on Pancasila and citizenship education subjects at the Muhammadiyah Junior High School Special Program for Kottabarat Surakarta in the learning process activities carried out by Civic education teachers and grade IX students. The data were obtained through interviews with Pancasila and civic education teachers and observing the learning activities carried out using the active debate learning model for class IX students. The Civic education teachers carry out the learning process as usual by conducting opening activities, conveying the objectives of learning, conditioning the classroom atmosphere for learning process activities and applying the learning process with an active debate model which is followed by class IX students. The interview activity was carried out with the Pancasila Education teacher and the civics of the Muhammadiyah Junior High School Special Program for Kottabarat Surakarta, the teacher explained that the preparation for the learning process must be carefully prepared and there must be a

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lesson plan, there is material that must be submitted to each subject matter to be applied in the learning process using the debate model active. The process of learning activities went well as planned in the lesson plan.

The results of observations made by researchers in the learning process of Pancasila and citizenship education, teachers carry out learning activities in a coherent and orderly manner such as opening at the beginning of each lesson, praying, motivating and encouraging, conveying learning objectives, explaining the material to be discussed, explaining the steps active debate learning model, dividing groups to be used as subjects for active debate learning in discussing the material that has been determined. Based on the results of the researchers' observations in the learning process activities using the debate learning model, students were well followed and able to strengthen students' critical thinking skills based on indicators of critical thinking skills, for example in the learning process students were able to understand the teacher's explanation regarding the steps of the active debate learning model. and able to understand the material that will be used as a topic of discussion, students also want to listen to other groups when delivering arguments, students are able to respond to arguments from other groups by conveying their opinions or ideas regularly according to their roles from both pro and con groups, students indirectly able to convey arguments well after hearing responses or arguments from other groups.

The implementation of learning is followed well and enthusiastically by students, because students feel there is a new and interesting learning model, in Pancasila and citizenship education subjects often use the lecture model, so that when the teacher applies the active debate learning model students feel there is something new and interesting . This is certainly what is expected by the teacher as one of the solutions to various problems faced in the learning process of Pancasila and civic education, namely by training students to have critical thinking skills through an active debate learning model.

Based on the results of research conducted by researchers at the Muhammadiyah Junior High School Special Program for Kottabarat Surakarta, there are results that to strengthen the critical thinking skills of class IX students, one of them is the learning process. An effective learning process is able to strengthen students' critical thinking skills, in this case at the Muhammadiyah Junior High School Special Program for Kottabarat Surakarta, Pancasila and Civic Education teachers apply an active debate learning model that is used as a solution to the problems faced by class IX students. Because with the active debate model, students learn a lot, including learning to understand the material discussed, identifying problems, listening to other people's opinions, analyzing, giving feedback to debate opponents, able to speak well with a clear intonation and able to conclude and make decisions in arguing. Thus, by applying the active debate learning model, it can train students to be active in the learning process. So that students' critical thinking skills will be trained by themselves.

Active Debate Learning Model

The learning model is a series of presentations of learning materials used by teachers in carrying out the learning process in schools in order to achieve learning objectives. Basically the learning model is a systematic procedure or pattern designed to carry out the learning process activities in schools. The learning model is a conceptual framework as a guide for teachers or educators in planning the activities of the learning process in schools.

The active debate learning model is an activity of opinion or argumentation between two or more parties, carried out either individually or in groups in discussing a problem. Teachers need to apply a cooperative learning model. Cooperative learning models include active debate learning models that are able to help students channel their ideas, ideas and opinions (Wijaya, 2019). The active debate learning model is used to stimulate discussion in class, with discussion it encourages students to express opinions through debates both individually and in discussion groups that are incorporated into a discussion in class. This active debate design aims to encourage students to be active in learning and be able to express their ideas, ideas, and opinions.

The active debate learning model is able to develop students' potential in strengthening critical thinking skills by understanding a problem, analyzing, criticizing, drawing conclusions, and providing solutions. So that this active debate learning model has a huge impact on students in dealing with the times that are not free from various problems, by having the ability to think critically becomes one of the capital to become good citizens in living the life of society, nation and state.

Civic Education

Learning is an activity carried out by teachers and students in schools, a good learning process when there is good interaction between educators and students so that there is a stimulus from the teacher and a response from students. Based on Law no. 20 of 2003 concerning the National Education System, Article 1 Paragraph 20 explains that learning is a process of interaction between students and educators and learning resources in a learning environment. Meanwhile, according to Sistadewi, MA (2021), learning is a process of communication between students, educators and teaching materials. Another opinion is explained by Fitriansyah (2022), learning is an interaction between students, educators and learning resources are things that must be designed in such a way as to suit the learning objectives so as to create an effective and efficient learning process.

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According to Budiastuti, et al (2021), learning objectives are designed in accordance with the needs of educational goals at each level or school institution by realizing the ability of students to be able to master the expected material.

Civic education is education related to the importance of rights and obligations as citizens, so that behavior and actions are carried out in accordance with the goals and ideals of the state. Education must be applied from an early age at the elementary to tertiary levels in order to produce the next generation of the nation who is competent and able to face the challenges of a nation. Citizenship education is an education that forms citizens into smart and good citizenship who understand and carry out their rights and obligations as Indonesian citizens in accordance with the provisions of Pancasila and the 1945 Constitution. Civic education is participation contained in various forms of learning such as research, community service models or community service, conflict model (Ellis, 1998).

Each country has a history of struggle of each in determining the fate of their country, the formation of a country can not be separated from the struggle of the previous people who think about the fate of their children and grandchildren in the future. So that the fighters have the determination to make history in each of their countries with nationalist, patriotic and other values that are inherent in the soul of every human being. Along with the times and technological advances or what is called the era of globalization is currently a challenge for a country, because values and history will fade and fade away, therefore there is a need for learning to maintain these values so that they remain attached. citizens in carrying out their rights and obligations in living the life of society, nation and state.

Citizenship education has goals, including growing awareness of the state and patriotic behavior, having an understanding of the archipelago, national resilience and having to prepare to become the next generation of the nation that is able to face the changes and challenges that exist.

Critical thinking

Critical thinking skills can encourage students to issue new thoughts or ideas about a problem logically, systematically, reflectively and productively that can be applied when making good decisions and considerations. Critical thinking is a person's ability to solve a problem at hand. Someone who has the ability to think critically is an advantage because he is able to produce better ideas. In addition, someone who has the ability to think critically dares to take big decisions but has calculated the intellectual risk and is able to consider unusual ideas and use imagination in analyzing a problem. According to Paul and Elder (2016), critical thinking is a person's way of thinking about objects, content or a problem to strengthen the quality of his thinking skillfully. Meanwhile, according to Ennis (1996), critical thinking is a thinking process of someone who has a goal in making rational decisions in deciding a belief in doing something.

The same thing was conveyed by Karwowski et al (2019), the purpose of critical thinking skills is to train confidence in the ability to think and act creatively. Based on the expert opinion above, it can be concluded that the purpose of critical thinking is to test someone's ideas, ideas or thoughts so that they are able to encourage that person to issue new ideas or opinions. Critical thinking aims so that students have good thoughts, not hard thoughts. Someone who can hone critical thinking skills usually has a broader and higher curiosity, thus students are able to analyze a material presented by the teacher during learning. Teachers as facilitators in the learning process must have the ability to build students' curiosity in the learning process, thus students can actualize their thinking skills in digging wider information. The essence of critical thinking focuses on a person's thinking which is directed to analyze an argument, recognize truth and error and be able to conclude based on valid and correct evidence.

The Importance of Critical Thinking on Pancasila Education and citizenship subjects

Indonesia is a country that continues to follow the era of the times, therefore to face the challenges in the current era of globalization it is necessary to have capital that must be owned by every citizen so that they are able to face the challenges that exist and can enjoy this development well and benefit themselves and others. The era of development that continues to advance and develop certainly does not escape the problems that arise, giving rise to several issues or challenges that must be faced maturely and wisely, therefore critical thinking becomes a very important element in dealing with issues that develop in personal and community life (Naisbitt & Alburdenne, 1990). As rational beings, humans have the ability to think critically in order to be able to face the challenges that exist.

Humans in living their lives must be compelled to think about things that are around them, the tendency in humans to mean that the events around them are an indication of the ability to think or the formation of human activity since birth. Thinking is an activity or process of knowledge between stimulus and response from learning activities. Schools are educational institutions that are considered capable and appropriate in developing students' critical thinking skills. Because the educational process is carried out in schools, students not only get information from the teacher, but students' ways of thinking will also be formed and a number of morals such as broad open-mindedness, a tendency to empathize, tolerance and have a sense of justice (Wright, 2005).

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Critical thinking is a process that occurs naturally in everyone, thus critical thinking is a person's activity in solving problems. Students' critical thinking skills can be improved by guiding and training students' sharpness in thinking faced with various problems, thus students will indirectly think to find solutions or find a way out of these problems, because a person's ability will continue to develop if often trained or get used to. So that the ability to think critically must be possessed by students and every human being, because in living life in the family, society and country, of course they experience various problems, so that with the provision of critical thinking skills in students or everyone is able to face the problems faced wisely and well.

Civic education is an important element and must be implemented to develop students' ability to think logically, analyze arguments, distinguish facts and opinions, recognize logical errors, understand propaganda techniques and in short to analyze thoughts. The Indonesian state must organize civic education because each generation is a new person who must gain knowledge, attitudes and skills in order to be able to develop a country that has good character or character in living the life of society, nation and state.

IV. CONCLUSION

Based on the results of the analysis and discussion that have been described in the previous description, it can be concluded that the active debate learning model can strengthen the critical thinking skills of grade IX students in the subjects of Pancasila Education and citizenship. It is evident from the learning outcomes that show that by applying the active debate learning model, students have a level of enthusiasm in participating in the learning process and the resulting output is able to speak well and confidently, able to analyze and identify a problem, able to take a decision in an accountable argument. Thus, this active debate learning model has a positive impact on students.

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REFERENCES

- 1) Jerome, L. 2012. "Service Learning and Active Citizenship Education in England", *Education, Citizenship and Social Justice*, Vol. 7, No. 1, pp. 59-70.
- 2) Kerr, D. 2002. "An International Review Of Citizenship In The Curriculum: The Tea National Case Studies And The Inca Archive", Gita Steiner-Khamsi, Judith Torney-Purta and John Schwille, in (ed.) *New Paradigms and Recurring Paradoxes in Education for Citizenship: An International Comparison (International Perspectives on Education and Society, Vol 5, Emerald Group Publishing Limited, pp. 207 – 237.*
- 3) Biesta, G., J., J. 2011. *Education, Lifelong Learning, and the Politics of Citizenship*. Netherlands: Sense Publisher.
- 4) Johnson, EB. 2014. *Contextual Teaching & Learning: Making Activities Fun and Meaningful Teaching and Learning. Bandung: Mizan Media Main (MMU).*
- 5) Santrock, JW. 2011. *Educational psychology (5th ed)*. New York: McGraw-Hill. Companies, Inc.
- 6) Joe YF Lau. 2017: *Reflections on the Umbrella: Implications for civic education and critical thinking*, *Educational Philosophy and Theory*, DOI: 10.1080/001 31857.2017.1310014. 1-12
- 7) Trinova, Z., Nelwati, S., & Aini, J. 2022. Application of the Active Debate Learning Model in the Field of Islamic Religious Education Studies at SMAN 5 Payakumbuh. *Journal of Basic Education and Social Humanities*.
- 8) Sistadewi, MA. 2021. The Use of Youtube Media in Indonesian Language Learning During Face-to-Face Schools is Limited. *Journal of Language Education and Learning*.
- 9) Fitriansyah, Fifit. 2022. Limited Face-to-face Learning Dynamics Among Students. *Prima Magistra: Scientific Journal of Education*.
- 10) Budiastuti, et al. 2021. Analysis of Learning Objectives with Basic Competencies in the Implementation Plan of Basic Electrical and Electronics Learning in Vocational High Schools. *Journal of Electrical Education*.
- 11) Ellis, A. 1998. Rational emotive behavior therapy and its applications to *emotional education*. In A. Ellis & S. Blau (Eds.), *The Albert Ellis reader: A guide to well-being using rational emotive behavior therapy (pp. 253 260)*. New Jersey: Citadel Press.
- 12) Ennis, RH. 1996. Critical thinking dispositions: their nature and assessability. *University of Illinois uc. Informal logic*. 18 (2 & 3), 165-182.
- 13) Karwowski, M., Lebuda, I., & Beghetto, RA. 2019. 19 - Creative Self-Beliefs from Individual Differences in Creativity.

Active Debate Learning Model in Strengthening Critical Thinking Skills for Class IX students

- 14) Naisbitt, J. & Alburdene, P. 1990. Megatrends 2000: The next 10 year: Major *changes in your life and world*. London: Sidgwick & Jackson LTD.
- 15) Wright, T. 2005. Classroom management in language education. New York., us: MacMillan.



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The Influence of Parental Behavior on the Habits of Early Childhood Education in Consuming Betel Nut in West Timor Kupang



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INTRODUCTION

Consuming betel nut is a behavior that has been entrenched in Kupang Regency and even in East Nusa Tenggara Province. Culture is an abstract concept concerning the problem of social life which is a choice of a certain way of life and behavior patterns that are continuously displayed, maintained, displayed and developed as generation to generation (2) Consuming betel nut, especially in Kupang Regency, is actually strongly influenced by local culture, namely culture. "Oko Mama"(2). Elementary school children consume a lot of betel nut, around 80%, especially in a previous study in the village of Oelnaineno (2) The high consumption of betel nut in Kab. Kupang cannot be separated from cultural and family factors. There have been many studies that are connected between consuming betel nut with the development of babies in mothers who consume betel nut. One of the outcomes of pregnancy that has to do with consuming betel nut is low birth weight (LBW) babies. LBW is usually the condition of the baby who is short and weighs less. Such conditions will result in stunting children (3). Stunting is still a major health problem in Indonesia and even worldwide. Although stunting cases in certain countries have started to decline, in Indonesia this case is being discussed by health experts. Low nutrition is closely related to stunting, wasting, low birth weight and anemia. Malnutrition in children is a significant problem in Indonesia; stunting conditions, low body weight, and very thin children (wasting) continue to affect children under five. Stunting reflects chronic malnutrition and can have long-term impacts, including stunted growth, decreased cognitive and mental abilities, susceptibility to disease, low economic productivity, and low quality of reproductive output. Wasting is the result of acute malnutrition and high frequency of illness in children; This condition increases the risk of child mortality significantly. Stunting and wasting occurs because children do not get proper or appropriate nutrition at all stages of their lives. This condition can have significant implications for the health and survival of children in the long term as well as Indonesia's economic productivity and the nation's ability to achieve its national and international development targets.(4) Research in 2018 in Indonesia found that 29.9 percent of children under the age of 24 months were stunted. Stunting rates vary significantly between regions; The highest prevalence of stunting is found in the western and easternmost regions of Indonesia and is more widespread in rural areas than urban areas. Further research found that the stunting rate even reached 42 percent in several parts of Indonesia. It is even an important note by UNICEF that 1 in 3 children under five in Indonesia is stunted (4). Furthermore, UNISCEF underlined that about 10% of babies born in Indonesia have low birth weight, this indicates the presence of malnutrition in the mother.

Chewing betel nut is an ancient culture in Timor and many other places in East Nusa Tenggara to this day. In this modern era, the practice of consuming betel nut is rarely found in the view of modern people, consuming betel nut looks less clean, and usually they throw their red saliva in any place, even in parks which reduce the beauty of the scenery. In addition, in this era of covid, throwing away carelessly will have a very big impact on the spread of covid 19, because consuming betel nut will experience hypersalivation, so that you throw up saliva continuously. Concerns have been expressed that the frequent excessive salivation caused by chewing betel nut poses a health hazard to the environment. Saliva may contain bacterial and viral material, making it a means of disease transmission. Tuberculosis, a bacterial infection transmitted by inhalation of infected particles, is common in many places. Control of spitting and coughing in an infected person is advised to minimize the possibility of disease transmission. As a result, excess saliva chewing betel nut can be a significant means of transmission in areas with a high prevalence of areca nut use and tuberculosis infection. In addition to being a carcinogen, areca nut also causes various degenerative diseases, as well as diseases in the mouth (5) The habit of consuming betel nut usually starts from childhood, and it

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is believed that habits that start from childhood will lead to adulthood and later appear a a habit that is difficult to control because of the addictive nature of betel nuts (5). The behavior of consuming betel nut is influenced by culture (6) while human life in modern society in the global era is always vulnerable to the inevitable process of social change. Indigenous peoples are also vulnerable to change, especially to things that make life better, but the values certain values that become their identity and identity that have been preserved for generations are not destroyed (1)

The most basic education is PAUD (Early Childhood Education). In early childhood education, character education is taught to children. Children usually imitate adults a lot at this age. Research objectives:1. Analyzing the relationship between consuming betel nut in PAUD children and consuming betel nut in parents. s 4. Exploring the habit of consuming betel nut in early childhood children Kab. Kupang

METHOD

The population of PAUD children from 100 PAUD under UNICEF's care from 24 sub-districts ranged from 2400 and using a statistical cross-sectional study with stratified random sampling was carried out to explore the influence of parents on the habit of consuming betel in PAUD children in Kupang Regency. The sample consists of 10 PAUDs in Kupang Regency with details in the Amfoang 2 PAUD Fatuleu 2 PAUD area, the Amabi Oefeto area 2 PAUD and the Amarasi area there are 2 PAUD.. The average number of students for 1 PAUD is around 15-20 people. It is estimated that the total sample of 4 PAUD representing 24 sub-districts in Kupang Regency is 200 to 300 people. The criteria for PAUD are those that include UNICEF care and have mentors in each sub-district. The self-reported questionnaire was filled out anonymously by parents of active PAUD children as a sample. The inclusion criteria for PAUD children are attending 100 PAUD under the care of Unicef and New Zealand aged between 4-6 years, male and female students and their parents consuming betel nut or not consuming betel nut.

Researchers will measure behavior by first measuring attitudes, subjective norms, Percieved Behavior Control and knowledge of respondents. Then the intention is also measured which will affect the behavior in consuming betel nut. The PAUD children were asked about 1. Frequently consuming betel nut, 2. Rarely consuming betel nut and 3. Ever trying to consume betel nut and 4. Never. In compiling the questionnaire researchers used Constructing Questioners Based on The Theory of Planned Behaviour A Manual for Health Services Researchers (19)

RESULT

Frequency Distribution of Respondents by Gender

Gender	Frequency	Percent
Male	94	45.9
Female	111	54.1
Total	205	100.00

Frequency Distribution of Respondents by Occupation

Occupation	Freuency	percent
Housewife	23	11.2
Farmer	148	72.2
Government employee	8	3.9
Private employee	5	2.4
Other	21	10.2
Total	205	100.00

Level Education of Respondent

Education	Frequency	Percent
No School	20	9.8
Primary School	100	48.8
Junior High School	26	12.7
Senior High School	49	23.9
Diploma/Bachelor	10	4.9
Total	205	100.00

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Frequency Distribution of Respondents by Age

Age Group	Frequency	Percent
17-25	44	21.5
26-35	50	24.4
36-45	58	28.3
46-55	53	25.9
Total	205	100.0

Crosstab Between Parents and Children Who chewing Betel Nut

		children		Total
		No chewing	chewing	
Parent	No chewing	34	5	39
	chewing	2	164	166
Total		36	169	205

Correlation Test Results Between Parents and Children Who Chewing Betel Nut

Spearman's rho			Parent	Children
	Parent	Correlation coefficient	1.000	.887**
		Sig. (2-tailed)		.000
		N	205	205
	Children	Correlation coefficient	.887**	1.000
		Sig. (2-tailed)	.000	
		N	205	205

** . Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

Betel nut is consumed by both men and women. In Timor, it is the same as elsewhere, including in Bhutan (Wangdi and Jamtsho, 2020), in Mehrtash et al., 2017; Pratt 2015; From Table 1, female betel nut consumption is more than male, this is contrary to research from Wasir et al., 2016 Myint et al, 2016 that the prevalence of males is greater than females. Likewise, research by Kumar et al (2021) in Guwahati, Assam, India, the majority of betel nut consumers are male. The current research is supported by past research (Flora et al., 2012; Ghani et al., 2011; Heck et al., 2012, Wangdia and Jamtsho 2020) that more women consume betel nut. Meanwhile, according to Myint et al (2016) that the factors that are significantly related to consuming betel nut is the male sex dominates in terms of consuming betel nut. Usually, betel nut consumers also consume alcohol and have low education and even no education. As in this study, most of the betel nut consumers had elementary education or did not graduate from elementary school, followed by junior high school graduates

In this study there is a very striking difference, especially in the start of learning to consume betel nut, which has started since early education (PAUD), while other researchers have started consuming betel nut since Primary School, Junior High School or even Senior High School or some have started consuming betel nut since Primary School. marry. Such as research by Mora et al 2007 which states that betel nut consumers learn to consume betel nut in their late teens and some start consuming betel nut at the age of 10 years and adopt betel nut consumption in their parents and peers. In this study, children learned to consume betel nut since early education, some even as young as 1 year old were given betel quid (a mixture of betel nut which was chewed by the mother and then put into the child's mouth). This is a new finding from this study. Meanwhile, regarding the work of betel nut consumers, they are farmers and housewives. Research by Huang et al, (2020) that most of the betel nut consumers are drivers. According to the researcher's statement, the use of betel nut seems to have decreased compared to the

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previous years, both in 2009 and 2013. While in this study, according to the data, there seems to be no sign of a decrease in prevalence due to where parents consume betel nut, their children also consume betel nut. As many as 82.4% of parents consume betel nut and as many as 83.3% of their children consume betel nut either regularly, sometimes sometimes or have tried it, however, children who consume betel nut regularly mostly if their parents are consuming betel nut then their children also will follow the consumption of betel nut. In the data above, there is an increase in the next generation. Research at USAPI (US Affiliated Pacific Island) by Dalisay et al,(2019) that most of the influence of consuming betel nut comes from parents and siblings. According to Paulino et al., 2017 in Guam it was found that the prevalence of consuming betel nut continues to increase from year to year, 48% of young people consume betel nut both men and women while parents as much as 46% consume betel nut both men and women. In this study, almost all ages consume betel nut if it is seen that children under 5 years old (PAUD children) also consume betel nut, while those aged between 36-45, namely 28.3%, are the most consumed, followed by age 46-55, which is 25.9%. Only a few betel nut consumers added tobacco when consuming betel nut in this study. In the research of Narayanan et al (2019), almost all ages consume betel nut and most of the betel nut consumers add tobacco when consuming betel nut. Cancer is the second most common cause of death for Americans, which is why cancer is the focus of public health efforts (CDC, 2017). According to WHO (2020) that Indonesia has 396 914 cancer cases and 234,511 deaths from cancer, including oral cancer, lung cancer and breast cancer the most. Areca nut has been designated by WHO (2012) as a class 1 carcinogen, meaning that the substances, mixtures and exposure conditions in this list have been classified as group 1 by the International Agency for Research on Cancer (IARC/International Agency for Research Cancer). In past research (Ngadilah, 2019) that most betel nut consumers misperception about the dangers of betel nut for health, both general health and oral health, especially oral cancer, while research in the Northern Mariana Islands by Narayanan et al (2020) stated that most of the betel nut consumers betel nut does not know or misperceptions about the dangers of betel nut for Oral Health, especially betel nut causes oral cancer, even certain ethnic groups totally disagree that areca nut causes oral cancer. In this study, in the questionnaire analysis, almost all respondents did not agree that betel nut causes oral cancer. Meanwhile 80% of Bangladeshi women and men living in London are aware of the dangers of smoking but only 24% of men and 36% of women are aware that betel nut is a carcinogen (Narayanan, et al 2020 cit. Ahmed 1997). Other findings indicate that exposure to cyanotoxin through chewing betel nut can contribute to oral cancer in the habit of chewing betel nut and is suspected to be associated with liver cancer (Hernandez, 2021). According to Khasbage et al (2021), that there is a relationship between consuming betel nut with an increase in liver disease. In previous studies, it was also found that there was a relationship between consuming betel nut and an increase in cirrhosis hepatitis.

From the statistical test results of the relationship between the behavior of parents and the behavior of PAUD children who consume betel nut, there is a significant relationship between the behavior of parents who consume betel nut with the behavior of children with a significance of $p < 0.05$. INTERGENERATION SECOND GENERATION AND THIRD GENERATION DISCUSSION Seeing both the cases, enamel craze fractures and staining the primary teeth were the most common clinical findings seen. Our second patient though agreed for discontinuing the habit; no such positive attitude was seen in first case. Both the cases, family members, were the main source for the initiation of the habit. Parents started this owed to wrong conceptions prevalent about the positive effects of areca nut chewing. In both the cases, we found that parents were reluctant to render the exact habit history knowing that it's a social stigma., In terms of reducing the prevalence of children consuming betel nut, besides educational institutions, parents, community, mass media including Social Media, can be involved in a multi-faceted intervention program for curbing this habit (Snigdha, 2021). Meanwhile widowati (2020) researching the use of betel nut as a cure for various diseases in Indonesia

According to Fang Yen et al (2016) that longer duration of paternal betel quid chewing and smoking, paterhood, independently predicted early occurrence of incident MetS in offspring, corroborating previously reported transgenerational effects of these habits, and supporting the need for habit-cessation program provision.

CONCLUSION

The behavior of consuming betel nut is significantly related to the parental effect on early education school children in Kupang Regency. In fact, this shows that there is a significant intergenerational influence of parents' behavior on their children's behavior in terms of consuming betel nut. To curb this rising stigma, awareness about the habit through Health education has to be imparted.

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REFERENCES

- 1) Flora, S. M., Mascie-Taylor, C. G. N., & Rahman, M. (2012). Betel quid chewing and its risk factors in Bangladeshi adults. *WHO South-East Asia Journal of Public Health*, 1(2),169-181.
- 2) Ghani, W. M., Razak, I. A., Yang, Y.-H., Talib, N. A., Ikeda, N., Axell, T. ... Zain, R. B. (2011). Factors affecting commencement and cessation of betel quid chewing behaviour in Malaysian adults. *BMC Public Health*, 11(1), 82. doi:10.1186/1471-2458-11-82
- 3) Heck, J. E., Marcotte, E. L., Argos, M., Parvez, F., Ahmed, A., Islam, T. Chen, Y. (2012). Betel quid chewing in rural Bangladesh: Prevalence, predictors and relationship to blood pressure. *International Journal of Epidemiology*, 41(2), 462–471. doi:10.1093/ije/dyr191
- 4) Kinley Wangdia,b and Tshering Jamtsho (2020): "Prevalence and Correlates of Betel Quid Chewing among Bhutanese Adults" 2020, VOL. 55, NO. 9, 1443–1449 <https://doi.org/10.1080/10826084.2019.1673416>
- 5) Sartaj Singh Wasir, Pallak Arora, Shalini Kapoor, Jayam Raviraj (2016):" Prevalence of areca nut chewing habit among high school children of Parsa district of Nepal" *Journal of Oral Biology and Craniofacial* November 2016.
- 6) Ashok Khandelwal, Vishal Khandelwal,¹ Mainak K. Saha,² Sushma Khandelwal,³ Sai Prasad,⁴ and Suparana G. Saha⁵ (2012) : " Prevalence of areca nut chewing in the middle school-going children of Indore, India' , [Contemp Clin Dent](#). 2012 Apr-Jun; 3(2): 155–157.
- 7) [Su Kyaw Myint](#), [Kulaya Narksawat](#), [Jutatip Sillabutra](#) (2016):" Prevalence And Factors Influence Betel Nut Chewing Among Adults In West IN Township, Yangon, Myanmar "Southeast Asian J Trop Med Public Health . 2016 Sep;47(5):1089-97.
- 8) Author links open overlay panel [Su-ChenWang^{ab}](#)[Chi-ChengTsaiMD^a](#) [Shun-TeHuangMD^a](#)[Yu-JueHongPh.D^c](#) (2004):" Betel nut chewing: the prevalence and the intergenerational effect of parental behavior on adolescent students [Journal of Adolescent Health Volume 34, Issue 3](#), March 2004, Pages 244-249
- 9) Alejandra Nuñez-de la Mora, Fahmida Jesmin, Gilliant betley (2007):"Betel Nut Use Among First and Second generation Bangladesh Women in London ,UK *Journal of Immigrant and Minority Health* · November 2007
- 10) Yu- Ting Huang, Pei -Shan Ho, Yann- Yuh Jou, Chien Yuan Hu, Ying-Wei Wang, Yi-Shin Yang (2020):"Determining High Prevalence of Betel-Quid Chewing and Cigarette Smoking by Occupation Using the Taiwan National Health Interview Survey" <https://doi.org/10.1080/10826084.2020.1732421>; *Substance Use and Misuse Journal* Homepage
- 11) [Francis Dalisay](#), PhD, [Wayne Buente](#), PhD, [Chantay Benitez](#), B.A., [Thaddeus A. Herzog](#), PhD, and [Pallav Pokhrel](#), PhD Adolescent betel nut use in Guam: beliefs, attitudes and social norms' [Addict Res Theory](#). Author manuscript; available in PMC 2020 Jan 11
- 12) Centers for Disease Control and Prevention. (2016). Cancer control in the U.S. affiliated Pacific Islands. Retrieved from <http://www.cdc.gov/cancer/ncccp/usapi.htm>.
- 13) A. Blythe Ryerson, PhD, MPH¹; Greta M. Massetti, PhD¹ ([View author affiliations](#) (2017):" Centers For Disease Control (2017):"CDC's Public Health Surveillance of Cancer" SPECIAL TOPIC — Volume 14 — May 18, 2017
- 14) Paulino YC, Hurwitz EL, Ogo JC, Paulino TC, Yamanaka AB, Novotny R, Wilkens LR, Miller MJ, & Palafox NA (2017). Epidemiology of areca (betel) nut use in the mariana islands: Findings from the University of Guam/University of Hawaii cancer center partnership program. *Cancer Epidemiology*, 50, 241–246. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
- 15) Hernandez BY, Biggs J, Zhu X, Sotto P, Nagata M, Mendez AJP, Paulino Y.(2022) : "Environmental Exposure to Cyanobacteria Hepatotoxins in a Pacific Island Community: A Cross-Sectional Assessment. . *Microorganisms Journal* 2022 Aug 9;10(8):1607. doi: 10.3390/microorganisms10081607. PMID: 36014026 Free PMC article.
- 16) Dalisay F, Pokhrel P, Buente W, Kawabata Y (2022):" [Exposure to tobacco and betel nut content on social media, risk perceptions, and susceptibility to peer influence among early adolescents in Guam](#). *Addict Behav Rep*. 2022 Jan 3;15:100405. doi: 10.1016/j.abrep.2021.100405. eCollection 2022 Jun. PMID: 35434250 Free PMC article.
- 17) Paulino YC, Ada A, Dizon J, Benavente EJ, Campbell KML, Cristobal B, Daughtry A, Estabillo LMO, Flisco VDC, Badowski G, Hattori-Uchima M. [Development and evaluation of an undergraduate curriculum on non-communicable disease research in Guam: The Pacific Islands Cohort of College Students \(PICCS\)](#). *BMC Public Health*. 2021 Nov 3;21(1):1994. doi: 10.1186/s12889-021-12078-9. PMID: 34732169 Free PMC article.
- 18) Cash HL, De Jesus S, Durand AM, Tin STW, Shelton D, Robles R, Mendiola AR, Brikul S, Ipil M, Murphy M, Hunt LSS, Nielsen Lesa F, Sigrah CA, Waguk R, Abraham D, Kapiriel SF, Camacho J, Chutaró E. (2021):"Hybrid Survey' approach to non-communicable disease surveillance in the US-Affiliated Pacific Islands." *BMJ Glob Health*. 2021 Oct;6(10): e006971. doi: 10.1136/bmjgh-2021-006971. PMID: 34706881 Free PMC article.

The Influence of Parental Behavior on the Habits of Early Childhood Education in Consuming Betel Nut in West Timor Kupang

- 19) Hernandez BY, Zhu X, Sotto P, Paulino Y (2021):" [Oral exposure to environmental cyanobacteria toxins: Implications for cancer risk.](#)" Environ Int. 2021 Mar; 148:106381. doi: 10.1016/j.envint.2021.106381. Epub 2021 Jan 19. PMID: 33465665 Free PMC article
- 20) Centers for Disease Control & Prevention (CDC). (2017). High School Youth Risk Behavior Survey: Guam 2017 Results. Accessed July 17, 2018, at <https://nccd.cdc.gov/youthonline/App/Results.aspx?LID=GU>
- 21) World Health Organisation (2020) ;" International Agency for Research on Cancer, Indonesian Globocan 2020" <https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact-sheets.pdf>.
- 22) Ajay M. Narayanan BSA; Ahana Yogesh BA, Mary P. Chang, RK. Orosco, Andrey Finegersh, William Moss (2020):"A Survey of Areca (Betel) Nut Use and Oral Cancer in the Commonwealth of the Northern Mariana Islands" : <https://www.researchgate.net/publication/340923894>, HAWAI'I JOURNAL OF HEALTH & SOCIAL WELFARE, APRIL 2020, VOL 79, NO 4
- 23) Ahmed S, Rahman A, Hull S. (1997):" Use of betel quid and cigarettes among Bangladeshi patients an inner-city practice: prevalence and knowledge of health effects. British Journal of General Practice. 1997; 47:431-434
- 24) [Ajay M Narayanan¹](#), [Andrey Finegersh²](#), [Mary P Chang³](#), [Joanne Ogo⁴](#), [Ryan K Orosco](#) , [William J Moss](#)-The profound oral cavity cancer burden in the United States Commonwealth of the Northern Mariana Islands: A global health opportunity" Am J Otolaryngol . 2019 Nov-Dec; 40(6):102267. doi: 10.1016/j.amjoto.2019.07.011. Epub 2019 Jul 19
- 25) [Arvind Kumar](#)—, [Kunal Oswal](#), [Ravikant Singh](#)—, [Neha Kharodia](#) , [Akash](#) , [Pradhan Pradhan](#), [Lakshman Sethuraman](#)⁻¹, [Ramachandran Venkataramanan](#) , [Arnie Purushotham](#) (2021) ; -Assessment of areca nut use, practice and dependency among people in Guwahati, Assam: a cross-sectional study" Ecancermedalscience . 2021 Mar 4;15:1198. doi: 10.3332/ecancer.2021.1198. eCollection 2021.
- 26) [Suwarna B Dangore Khasbage](#), [Rahul R Bhowate](#), [Nazli Khatib](#) (2021): -Risk of liver disease in areca nut habitual: A systematic review" Journal Oral Maxillofac Pathol . 2022 Jan-Mar;26(1):128-129. doi: 10.4103/jomfp.jomfp_345_21. Epub 2022 Mar 31.
- 27) Grace Hui-Min Wu 1, Barbara J Boucher2,, Yueh-Hsia Chiu , Chao-Sheng Liao 3 and Tony Hsiu-Hsi Chen (2008):" Impact of chewing betel-nut (Areca catechu) on liver cirrhosis and hepatocellular carcinoma-: a population-based study from an area with a high prevalence of hepatitis B and C infections" Article in Public Health Nutrition · May 2008.
- 28) Snigdha Shrabani, [Tavleen Bajwa](#), Shaubhik Anand, Lalik Mohan (2021):' Cross-sectional Study on Prevalence of Betel Nut Chewing among the Youth of Meghalaya, North East Region of India: Development of Multifaceted Prevention Strategy" uly 2021 [Asian Pacific Journal of Tropical Biomedicine](#) 8(3):185- 190 DOI:[10.21276/apjhs.2021.8.3.32](https://doi.org/10.21276/apjhs.2021.8.3.32)
- 29) [Amy Ming-Fang Yen](#), [Barbara J. Boucher](#), [Sherry Yueh-Hsia Chiu](#), [Jean Ching-Yuan Fann](#), [Sam Li-Sheng Chen](#), [Kuo-Chin Huang](#) and [Hsiu-Hsi Chen](#) (2016):' Longer Duration and Earlier Age of Onset of Paternal Betel Chewing and Smoking Increase Metabolic Syndrome Risk in Human Offspring, Independently, in a Community-Based Screening Program in Taiwan" <https://doi.org/10.1161/CIRCULATIONAHA.116.021511> Circulation. 2016; 134:392–404
- 30) Lucie Widowati, Lestari Handayani Rochmad Muhajid (2020)" The use of betel (Piper betle) leaves for maintaining the health of women and children at various ethnic groups in Indonesia" Nusantara Biocience [Vol. 12 No. 2 \(2020\)](#)



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The Relationship Between Social Supervision Received by Indonesian Citizens of Chinese Descent and its Integration with the Original Indonesia in Babakan Sub-District Bandung



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ABSTRACT: This study is about the relationship between social supervision of Chinese descent and native Indonesian citizens with the aim of knowing the characteristics of Indonesian citizens of Chinese descent who receive social supervision and who integrate with indigenous Indonesian citizens and the relationship between social supervision received by Indonesian citizens of Chinese descent and integration with citizens of China. indigenous. The research method is a descriptive correlative method, with a stratified random sampling technique. The sample studied was 43 people, to obtain data to prove the hypothesis used documentation study techniques and questionnaires based on an ordinal scale consisting of very high, high, medium, low, and very low. To prove the hypothesis for acceptance of Ho and Hi, statistical test of sperm rank correlation was used at TS 0.05. The results of the study indicate that the integration of Indonesian citizens of Chinese descent is quite good but still needs further guidance and development. The data show that the social integration of the community cannot be separated from the social supervision of the community. The results of statistical analysis prove that there is a relationship between social supervision received by Indonesian citizens of Chinese descent and their integration with native Indonesian citizens. On the other hand, the social control carried out by indigenous people is still weak, such as acceptance of their existence, their involvement in various community activities. To further ensure better integration, in the effort to integrate the community, suggestions are proposed aimed at improving and implementing the informal social control function through neighborhood associations and social organizations.

KEYWORDS: Relations, Social Control, Chinese Integration, Indigenous Peoples

INTRODUCTION

The life of modern society is marked by the advancement of science and technology, especially in the field of communication and transportation facilities. These advances have played a role in shaping and changing the needs of the system of norms, lifestyles, interactions, attitudes and views of life of the community, so that people have started to lead to a concept of life which is better known as individualism, for example in the cities of a group of people who live in a harmony. neighbors do not know each other. This individualism attitude is also influenced by cultural background, ethnicity, religion, race and even citizenship background. Theoretically and several research results, it is known that community development, especially the development of community integration based on ethnicity, religion, race, diverse languages and various civic backgrounds has been able to be unified through the concept of national integration. According to Skinner, China in Southeast Asia has actually experienced de facto assimilation with the indigenous population.¹ But if we look at the reality on the ground, this is not entirely the case. It is indeed a difficult endeavor to create the integration of people from different and complex backgrounds. It has long been felt among the wider community that there are various problems that cause strangeness and unrest, which generally revolve around one group of Indonesians known as the Indonesian population group of Chinese descent. These worries and anxieties are multi-complex in nature and are remnants of the legacy of the past that have not been managed properly until now. This was confirmed by Sarlito Wirawan Sarwono who said that in the Dutch era, the Chinese and other Easterners had rights and privileges that were protected by colonial law. Of course the Chinese got rich faster and the other

¹Nazir, Moh. (1988). *Research methods*. Third Printing. Jakarta: Ghalia Indonesia

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Indonesians continued to suffer. Because of that, a feeling of hatred for the Chinese grew.² The history and development of the life of the indigenous people and the Chinese have benefited the position and fate of the Chinese, especially in economic life, so that until now they hold vitality in economic life and are even very functional in the Indonesian national economy.

The openness of the Indonesian nation to the outside world has resulted in an increasing number of citizens of foreign descent in Indonesia. Of the many groups of foreign descent, people of Chinese descent show the highest number of population groups compared to other groups of people of descent. According to Mrs. E. Azhari. (Kompas, 2 November 1979) their current number has reached approximately 3% of the total population. This factor is still considered by native Indonesians as a factor that needs to be taken into account in the future because with such a number it is not impossible that they will be more free to control the economic life in this country. Various facts/evidence in society are interesting to be studied and analyzed today that relate to the integration of Indonesian citizens of Chinese descent with indigenous Indonesian citizens.³ At first glance we say it is integrated. However, if we look deeper, the reality is that they are still not integrated and do not necessarily feel that they are Indonesian.⁴ He further said that Indonesian citizens of Chinese descent generally live in groups and live in urban areas. It can be justified if we look at the reality in various places today, they rarely join to live with the indigenous population (although there are very few of them). People of Chinese descent have a tendency to live and work separately and are less willing to live and try to integrate with all other members of the wider community. And in reality, it can be seen that people of Chinese descent still maintain the culture of their ancestral lands as we see the existence of special schools, their own cemeteries, their own Chinese-language newspapers as stated by. Siswono Yudohusodo (1985), who said that in social interaction there are many Chinese racial groups. They are very restrictive and keep their distance in dealing with indigenous people, they mostly distance themselves and only relate to their own group.⁵

Actually, if we stand on a neutral side and we see the reality in the community that native Indonesians have not yet widely opened their attitudes and actions to accept Indonesian citizens of Chinese descent as they are, they generally only show hatred and give a negative stigma to the attitudes of Indonesian citizens of Chinese descent. who are less integrated with the original Indonesian citizens. However, it is rare to see the efforts made by the general public in the form of social supervision in the sense of directing, guiding and inviting Indonesian citizens of Chinese descent, so that they really realize that they feel themselves as Indonesians. This seems trivial, but the original Indonesian citizens as the majority community are very decisive and hold the key in the integration process.

The creation of harmonious social integration among people with different backgrounds should be welcomed and nurtured, because with such a social climate, a sense of collectivity and solidarity will grow among people who are able to carry out prevention and control of deviant behavior as well as in the community. overcome social problems of individuals, families and communities as well as in the implementation of development in the field of social welfare. Thus, seeing this fact, the authors are interested in conducting research related to the social supervision received by Indonesian citizens of Chinese descent and native Indonesian citizens and their integration with native Indonesian citizens located in Babakan Village, Bandung. Starting from the description of the background, the main problems that will be disclosed in this study are; what are the characteristics of citizens of Chinese descent who receive social supervision and who integrate with native citizens, how is the supervision received by citizens of Chinese descent from native Indonesian citizens based on religious norms, how supervision is received by citizens of Chinese descent from native Indonesian citizens which is based on moral norms, How is the supervision received by citizens of Chinese descent from original Indonesian citizens based on legal norms.

LITERATURE REVIEW

Indonesian citizens of Chinese descent

Indonesian citizens of Chinese descent in Indonesia are one of the many ethnic races of the Indonesian people and this group is the majority race among other races. In various literatures, it is seen that the definition of race in terms of various aspects. Paul B. Horton, et al. (1982) looking at race from a biological point of view said that a race as a category of people shared a particular combination of inherited physical traits.⁶ Race here refers to the same physical characteristics inherent in a person, such as skin color. In addition, Paul B. Horton also tries to see race from a sociological point of view by using the term ethnic group. According to Paul B. Horton et al, (1982) that ethnic groups are based upon a shared culture tradition, Paul further said that

²Compass. October 22, 1979. *Youth Pledge Has Rita Implemented the Development of National Unity*

³Compass. 2 November 1979. *Non-Indigenous Issues*. Reader's Letter.

⁴ Koentjaraningrat. October 27, 1988. *Attitude of Rentals Takes Off National Integration*.

⁵ Yudohusodo Siswono. (1985). *New Citizens of Chinese Cases in Indonesia*. Jakarta: Padamu Negeri Foundation Publishing Agency.

⁶ Horton B. Paul, Horton L. Robert and Hermanson Roger H. (1982). *Introduction to Sociology*. Third Edition. Homewood, Illinois.

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ethnic groups are based upon religion. Paul's emphasis here is that these ethnic groups exhibit almost the same cultural, ethos and religious ownership.⁷ Meanwhile, according to Wynetta Devore et al., (1986) who looked at race from a sociological and biological perspective and said that Race is the result of a differential concentration of gene frequencies that are responsible for traits confined to physical manifestations such as skin color or hair form that have no intrinsic with culture patterns and institutions.⁸ The definition given by Wynetta is that the race can be seen from physical characteristics such as skin color, hair shape and has absolutely no intrinsic value with existing cultural and institutional patterns. If we depart from the criteria of the two opinions above and we relate it to the existence of Indonesian citizens of Chinese descent in Indonesia today, this race or ethnicity can be categorized as the group intended by Paul B. Horton & Wynetta. However, to clarify our understanding of Indonesian citizens of Chinese descent in Indonesia as a minority group, the definition of minority group proposed by Boehn is almost the same as that proposed by Paul B. Horton. A certain ethnic group with distinctive national cultural characteristics that individually live in a country controlled by other nationalisms and are seen by the latter as unique from their own individualism.⁹

If we look at the reality in society, it is still clear that there are different uses of language as above. With the simplest example, for example, when we shop at a Chinese shop, they consult in their own language to determine prices. This community is found in West Sumatra, Java, Madura; Bali and Ujung Pandang. Meanwhile, if we depart from tradition or culture, according to Hidayat (1977) ethnic Chinese in Indonesia can be classified into three groups, namely the Chinese who tend to maintain traditional customs. Some are oriented specifically to the PRC, some are oriented to the Republic of China Taiwan, which tends to maintain its ancient traditions. While others are oriented to Hong Kong and Singapore.¹⁰

Social Monitoring

Social supervision is closely related to social norms or rules, therefore, before social supervision is described further, a little about social norms or rules will be described first. According to Kansil (1977) norms are the rules of life that affect human behavior in society.¹¹ Norms can be called a standard of various categories of behavior.¹² According to Kansil, there are four kinds of norms in social life, namely religious norms, moral norms, decency norms, and legal norms. Social supervision has actually existed since the beginning of human life which is still in the form of simple association. Where social control is a means to organize culture and human social behavior. In everyday conversation, social supervision is often interpreted as supervision by the community on the running of the government, especially the government and its officers.¹³ In Roucek's sense, social supervision includes all processes, whether at home or not, educating, inviting, or even forcing members of the public to comply with applicable social rules and values. According to Suparlan (1990), social control is a system of educating, inviting, and even forcing citizens to behave in accordance with social norms.¹⁴ Another understanding put forward by Popenoe (1982) who says that social supervision is any social process that conditions or limits the actions of people to motivate them to conform to social norms.¹⁵ While Light JR et al. (1982) which emphasizes the aspect of the goal provides an understanding of social control. The success of social supervision carried out in the community more or less depends on the factors where and to whom the social supervision is carried out.¹⁶ According to Alfred MoClung Lee (1953) social supervision can be divided into two types, namely informal social supervision and formal social supervision.¹⁷

Informal social supervision is a supervision that is spontaneous and unplanned. This type of supervision is usually found in people who are still classified as modest or communities with patterns of relationships among their members that are still quite strong, because they know each other and are familiar with each other. This is in accordance with the opinion expressed by Lowry and Rankin (1972) as follows: These processes are subtle ways in' which other people show approval or disapproval of behaviour. this; mechanism for control works most effectively in a closely knit group or society where individuals know each other well and come to depend upon each other intimately.¹⁸

⁷ Horton, B. Paul and Chester L. Hunt. (1984) *Sociology*. London: MC. Graw Hill Inc.

⁸ Devore Wynetta and Schlesinger G. Elfriede. (1986). *Ethnic Sensitive Social Work Practice*. Columbus, Toronto, London, Sydney. Bell and Howell Company.

⁹ Hidayat Z.M. (1977) *Indonesian Chinese Society and Culture*. Bandung: Tarsito.

¹⁰ Hidayat Z.M. (1977) *Indonesian Chinese Society and Culture*. Bandung: Tarsito.

¹¹ Peter R Day. (1981). *Social Work and Social Control*. London and New York: Tavistock Publications.

¹² Suparlan Y.B. (1990). *Karons Term Social Work*. Yogyakarta: Karnisius.

¹³ Soerjono Soekamto & Heri Tjandrasari. (1987). *Social Control*. First Print. Jakarta: CV. eagle.

¹⁴ Suparlan Y.B. (1990). *Karons Term Social Work*. Yogyakarta: Karnisius.

¹⁵ Popono, David. (1982). *Sociology, Frentioe-Hall Inc*. Englewood. New Jersey.

¹⁶ Light JR. and Suazane Keller. (1982). *Sociology*. New York: Alfred A. Knopf Inc.

¹⁷ KeClung Lee, Alfred. (1953). *Principles of Sociology*. New York: Barnes & Neble, Ino.

¹⁸ Lowry P. and Rankin. (1972). *Sociology*. New York: Charles Scribner's Sons

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According to Hendropuspito (1989: 321) informal supervision is carried out in order to maintain the unofficial regulations belonging to the community. It is said to be unofficial, because the regulations themselves are not clearly formulated and are not found in the legal context, but are only reminded by members of the public. However, this does not mean that the effectiveness of supervision is reduced, because this informal supervision is more subtle and spontaneous, the effect is sharper and the results are greater. Primary groups that are relatively peaceful, informal and persuasive types of social control may be more effective than the use of coercion. Formal social control is supervision held on the basis of official assignments by official bodies, both state official bodies and religious official bodies. Social supervision here is in the form of supervision that comes from the government towards the community.¹⁹ According to Sukarna (1990), social control is the attitude and behavior of the community individually or in groups aimed at individuals or groups with the intention of improving the situation in oral or written forms that are channeled directly or indirectly to government officials or community institutions. related in accordance with applicable laws and regulations.²⁰

Thus Brian J. Haurand, (1973) confirmed: These specific roles are often organized into special agencies to fulfill this purpose. These include the courts, prisons, hospitals, and some social work agencies.²¹ Although formal social supervision can be found in almost all communities, this supervision is generally found in urban communities. Where are the regulatory means such as public opinion, group control, customs, fear of rumours. Another classification of the types of social supervision according to, Endopuspito (1989) is positive versus negative supervision and institutional versus personal supervision. Institutional supervision is an influence that comes from a cultural pattern that is owned by a particular institution.²² The patterns of behavior and the rules of the institution do not consciously control the members of the institution, but also the community members who are outside the institution. While personal supervision is a good or bad influence that comes from certain people, for example genealogy, life history, etc. The process and factors that influence social supervision, according to Soerdono Soekanto et al. (1987) social control can occur at three levels, namely: (1) group against group, that is, if the group determines the behavior of other groups; (2) the group towards its members, ie if the group controls the behavior of its members; for example a lecturer with his guidance group; (3) personal to person, that is, if individuals influence the behavior of other parties. All of this is a process of social control that can occur in everyday life, although humans are often not aware of it. Furthermore. Soerjono S. said which method should be applied more or less depending on the factors towards whom the social control is aimed and under what circumstances.²³ Paul B Horton & Chester L. (1968) suggested that there are three ways to make community members behave in accordance with their environmental community.²⁴

Social supervision through socialization

Through socialization a person will internalize or live the norms, values or taboos in society, thus making it part of someone's automatic behavior which he does without thinking first.²⁵ They are less likely to violate the norms if they have fully implemented these values. A person can grow and develop in accordance with the expectations of the group only through socializing them with the values of their environmental community, so that they can carry out their roles in accordance with the expectations of the group. Community members educate in habits whether consciously or not, therefore they tend to use socialization as a good measuring tool for someone's behavior in a group.²⁶

Social control through group pressure

The primary group in which the members understand each other is a unit that plays an important role in the development and growth of a person's personality. Thus LaPiere (1954) that these groups are most influential when they are small and intimate, when the individual expects to remain in the group for a long time, and when he has frequent contacts with them.²⁷ Paul B. Horton et al. (1968). LaPiere opinion which says that; all authorities agree that our need for acceptance within intimate groups is

¹⁹ Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius

²⁰ Sukarna. (1990). *Social Control / Community Control. Printing I*. Bandung: PT. Image of Aditya Bakti.

²¹ Haurand, Brian J. (1973). *Sociology and Social Work*. New York: Pergamon Press Inc

²² Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius

²³ Soerjono Soekanto. (1987). *Sociology An Introduction*. Third New Edidi. Jakarta: CV. eagle.

²⁴ Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.

²⁵ Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.

²⁶ Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.

²⁷ LaPiere (1954), Robert M. Z, Lawang. (1988). *Classical and Modern Sociological Theories*. Jakarta: PT. grammar.

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a most powerful lever for the use of group pressure toward norms. So that many people change their views and turn to the desires and views of the group. With the pressure from the group, a person tends to obey the norms that apply and live in the group. This supervision can occur through informal primary groups, such as family, playmates and in secondary groups where the members are quite large and impersonal.²⁸

Social control through force

Social control through force is more often applied to secondary, large and culturally complex communities, where community members are no longer afraid of moral sanctions, rumors and ridicule, community groups like this require force that can coerce in the form of formal legal regulations. for the sake of creating order and peace, although it is not always successfully implemented, it will be more effective when compared to the implementation of other processes. In that connection, the social control system that takes place in the community is very varied.

Community Social Integration

According to Hendropuspito (1989), integrity is defined as a wholeness or unanimity. Therefore, social integration means making certain elements into a unified whole. The social integration of society means the makers of society into a unified whole. Furthermore, Hendropuspito (1989) provides limits on social integration from a macro perspective. With an understanding that is not much different from that stated by.²⁹ Hendropuspito, David F. Cox (1980) that integration is a process of change that takes place in human life and seeks to identify with larger groups and attempts to eliminate differences between the memes.³⁰ Suparlan et.al, (1983) also provide an understanding of the integration as the alignment of all activities of each part of an organization so that the activities complement each other and are directed towards achieving the main task.³¹ When associated with people's lives, the essence of the notion of social integration is the alignment of all aspects of people's lives. According to Ogburn W. F and Ninkoff H. F. (1964) there are several components of integration including Mechanical and Organic Integration.³² According to Ogburn (2010), this mechanical and organic integration refers to efforts to form the same characteristics as groups that give birth to group solidarity and the creation of dependence between them as a result of a clear division of labor. As for the concept of organic integration, Ogburn uses the concept of organic solidarity which refers to the creation of social integration as a result of a clear and firm division of labor.³³ Sociological Elements. is a material element that exists in the community, which includes: The existence of a number of different ethnic groups and or interest groups residing in adjacent areas. The existence of a number of heterogeneous socio-cultural units. There is a similarity in heterogeneity that occurs because of historical experience factors, or because the geographical similarity of Chinatowns has begun to be abandoned, they have started to join the indigenous people. Likewise, in the social sector, the pattern of settlement has begun to be abandoned by the younger generation who experience upward mobility. However, this new middle class of Chinese descent tends to choose locations that are close together, giving the impression of a new valuation in real estate complexes in big cities such as Jakarta and Surabaya.³⁴ (Prism, 1990).

METHOD

The research variables are as follows: Variable X, Social supervision received by Indonesian citizens of Chinese descent, with the following aspects: a). Supervision received from original Indonesian citizens based on religious norms, b). Supervision received from original Indonesian citizens based on moral/social norms, c). Supervision received from original Indonesian citizens based on legal norms, d). Variable Y, Integration of Indonesian citizens of Chinese descent with native Indonesian citizens with aspects, namely, There is a connection with the surrounding community. While the Sub-Hypothesis, namely, 1). There is a significant relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to their local community, 2). There is a significant relationship between social supervision received from native Indonesian citizens and the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment, 3). There is a significant relationship between the social supervision received from native

²⁸Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.

²⁹Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius

³⁰David R Cox. (1980). *Migration and Integration in the Australian Context, An Introduction to the Helping Professions*. University of Melbourne.

³¹Suparlan Y.B., Raohmanto Widjopranoto & Pardiman S. (1983). *Dictionary of Social Welfare Terms*. First Print. Yogyakarta: Author's Library.

³²Ogburn William E. & Meyer F. Nimkoff. (1984). *Sociology*. Fourth Edition. Boston: Houghton Mifflin Company.

³³According to Ogburn (2010), ganti warnah hitam). Rankin, Lowry P. (1972). *Sociology*. New York: Charles Scribner's Song

³⁴Prism No. 3, June 1973. *Settlement of the Overseas China Problem*, In Order to Improve National Defense and Security. Year II. LP3ES.

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Indonesian citizens and the growth of the same values between Indonesian citizens of Chinese descent and fellow members of the community. For this measurement, an ordinal scale is used which consists of 5 levels, namely very high, high, medium, low and very low. Patterns of social life and values prevailing in society as well as a tolerant attitude due to differences of opinion, which ranges from 13 to 65. Supervision received from native Indonesian citizens based on legal norms is the total score obtained from respondents' answers. Invitations to be involved in government programs, advice for neglecting to comply with obligations and treatment of rights and obligations, which range from 10 to 50. The integration of Indonesian citizens of Chinese descent with native Indonesian citizens is the total score obtained from respondents' answers. regarding aspects of the creation of a common life based on the existence of an attachment to the community in the environment, willingness to cooperate with members of the environmental community and having the same values as fellow community members ranging from 35 to 175. For this measurement, an ordinal scale is used consisting of 5 levels, namely very high, high, medium, low and very low. The measuring instrument used in measuring the variables of this research is to use the ordinal scale of the Bogardus social distance scale³⁵ (Masri Singarimbun; 1989) and (Carolina N., 1991) which consists of five levels, namely very high, high, medium, low and very low, with the following details: Very high: if the respondent chooses an answer that has a highly expected category value, it is given a score of 5. High: if the respondent chooses an answer that does not have the expected category value, it is given a score of 4. Medium: if the respondent chooses an answer that is has a moderate category value, given a score of 3. Low: if the respondent chooses an answer that has a low category value, it is given a score of 2. Very low: if the respondent chooses an answer that has a very low category, it is given a score of 1.

Testing the validity and reliability; The validity test carried out in this research is the advance validity test. This test is carried out by consulting the measuring instruments used in data collection to experts in their fields, in this case the author shows the lecturer. For testing the reliability of the measuring instrument used the Alpha coefficient reliability test. To see whether the measuring instrument to be used is reliable or not, the value of the Alpha coefficient test above is converted to the critical price table of r Product-Moment at TS 0.05, N = 15. If the test result (t count) is greater than t table, then measuring instrument declared reliable. The research method and design used in this research is descriptive X correlative, which is a method that aims to see whether there is an association between the research variables and how close the relationship is between the two and the meaning of the closeness of the relationship. The direction of the relationship in this study is a positive correlation, which means that if the value increase in the X variable (social supervision received by Indonesian citizens of Chinese descent) will be followed by an increase in the value of the Y variable (Integration of Indonesian citizens of Chinese descent with native Indonesian citizens). or vice versa if there is a reduction in the value of the Y variable, it will be followed by a reduction in the value of the Y variable.

Population and sampling technique; The target population in this study is the head of the family of Indonesian citizens of Chinese descent who live in the beautiful housing estate of Babakan Village which consists of 172 families. From the results of the assessment and data collection in the field, it was obtained that the composition of the population was described as follows: 8 elementary school students, 16 junior high school students, 116 high school students, 32 colleges/academics. Considering the limitations of funds, time and ability in carrying out this research as well as the homogeneity of respondents' characteristics, for the smooth implementation of this research, sampling was conducted. According to Suharsimi A. (1991) if the sample is more than 100, a sample of 10 - 25 % or 20 - 25 % or more can be drawn, or depending at least on: the ability of the researcher in terms of time, energy and funds; the narrow area of observation of each subject, because this involves a lot of data at least; the size of the risk borne by the researcher.³⁶ For researchers with a large risk, of course if the sample is larger. Based on the considerations above, a sampling of 25% of the existing population was held, which is 172 x 25% - 43 people. The sampling technique used is stratified random sampling, meaning that the population is first classified according to education level and then from each classification a random sample is drawn as large as a percentage of the population (Moh. Nazir, 1988). In accordance with the composition of the population that has already been done, sampling is carried out.

The data collection technique used in this study is a questionnaire, which provides questions that are filled out by respondents (with answers that have been provided in advance) without the presence of the researcher. In addition, to support the primary data obtained from respondents, data was collected from written data regarding the conditions of social control received by Indonesian citizens of Chinese descent and their integration with native Indonesian citizens in various activities and from documents. local government documents and previous research results.

³⁵Singarimbun Masri & Sofian Effendi (Editors). (1989). *Survey Research Methods*. First Printing .Jakarta: PT. Midas Surya Grafindo.

³⁶Murray OK Ross and Lappin B. tf. (1967). *Community Organization, Theory, Principles, and Practice*. Second Edition. New York, Evanston, London: Harper & Row, Publishers.

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Data analysis techniques; To determine whether there is a positive correlation and the extent of the closeness of the correlation between the two variables, a non-parametric statistical test is used using the Sperman Rank Correlation formula.³⁷

The reasons for choosing this statistical test are based on the following considerations: This study uses a descriptive correlative research design and method. The measurement of the two variables (to obtain data) uses an ordinal scale. These two variables have a correlative (associative) element between X and X variables. variable Y. The results of the assessment show that the population has almost the same variance (homogeneity).³⁸

DISCUSSION

First Hypothesis Testing

There is a significant relationship between the social supervision received by Indonesian citizens of Chinese descent and their integration with indigenous Indonesian citizens. Before testing the hypothesis, the conditions for rejection or acceptance of Ho are presented first. Ho is accepted if the calculated t-score is lower or equal to the t-table at a significance level of 0.05 for the two-sided test $db=N-2$. Based on the results of statistical calculations on the aspect of the relationship between social supervision received by Indonesian citizens of Chinese descent and its integration with native Indonesian citizens, it was obtained t count 4.57. While the critical price t contained in table B at TS 0.05 and $db = 41$ for the 2-sided test, the score for the t table is 2.021. The results above show that t count is greater than the critical value of t table contained in table B, namely $4.57 > 2.021$. While the provisions: Ho is accepted if t count is smaller or equal to Z table. So from the results of these calculations it is evident that Ho is rejected and Hi is accepted, which means: there is a significant relationship between social control received by Indonesian citizens of Chinese descent and its integration with native Indonesian citizens. Furthermore, to see further how is the relationship between social supervision received by Indonesian citizens of Chinese descent and its integration with native Indonesian citizens, the following will present data on the distribution of respondents on the aspect of the relationship between social supervision received by Indonesian citizens of Chinese descent and its integration with original Indonesian citizens based on the five-level ordinal scale measurement category as described previously.

Table 1. Distribution of Respondents by Category Measurement of the Relationship Between Social Supervision Received by Indonesian Citizens of Chinese descent and Integration with Native Indonesian Citizens

No.	Category Measurement	Variable X		Variable Y	
		Amount	X	Amount	X
1.	Tall	6	13.95	7	18.28
2.	Currently	11	25.58	27	82.79
3.	Low	22	51.17	8	18.80
4.	Very low	4	8.30	1	2.33
5.	Tall	0	-	0	-
Amount		43	100	43	100

Source: Research Results

Table 1 shows that the frequency of distribution of respondents is in a fairly strong positive correlation. We can see from the percentage spread of each measurement. In the high measurement category, the percentage of respondents in the X variable is 25.513% or 11 people, as well as the Y variable, the percentage is quite high, namely 62.79% or 27 people. Likewise in the very high category measurement, in variable X it is recorded that 13.95% or 6 respondents received very good social supervision from indigenous people and this was also proven in the same category, variable Y, where 16.28% of respondents or 7 respondents able to integrate with the surrounding environment. We can also prove the correlation in this aspect from the very low answer category. In this category, there is no respondent in variable X who has never received social supervision from indigenous people, and this correlation is also proven, that none of the respondents in variable Y who do not have integration with indigenous people. This evidence shows that the social supervision received by Indonesian citizens of Chinese descent has a significant relationship with their integration with indigenous Indonesian citizens. From the description and evidence above, we

³⁷Siegel, Sydney. (1990). *Non-parametric Statistics, for Social Sciences*. Jakarta: PT. Grammar

³⁸Syamsuddin AB. (2017) *Theory Of Social Research Methods*. Wade Group Publisher, Ponorogo

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can say that: There is a significant relationship between the social control that Indonesian citizens of Chinese descent receive and their integration with native Indonesian citizens and this relationship is a positive relationship.

Second Sub-Hypothesis Testing

There is a significant relationship between the social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to their local community. Based on the results of statistical calculations in the first sub-hypothesis testing above, the t-count score is 3.14 (appendix V b); while the critical value of the probability t contained in table 2 (Siney Sigel) at TS 0.05 and db = 41 for the two-sided test, the critical t table score score is 2.021. The results above indicate that the t count is greater than the critical value t contained in the table, namely $3.14 > 2.021$. Provisions: Ho is accepted if t count is less than or equal to t table. So, from the results of the calculation above, it is evident that Ho is rejected and Hi is accepted, which means: There is a significant relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to the surrounding community. Furthermore, to prove whether or not there is a relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to the surrounding community. In table 2, data on the distribution of respondents will be presented about the relationship between the two variables based on the 5-level ordinal scale measurement category.

In table 2 we see that the percentage of respondents in the very high measurement category, variable X, was recorded at 13.95% or 6 respondents received very good social supervision from indigenous people. In the same measurement category A, the Y variable shows the same percentage, namely 13.95% Indonesian citizens of Chinese descent feel a strong attachment to the community in their environment. This shows that these two variables have a very strong relationship or correlation.

Table 2. Distribution of Respondents by Category of Management and The Relationship Between Social Supervision Received by Indonesian Citizens Chinese Descendants and Indonesian Citizens' Descendants China With Its Environmental Society

No.	Category Measurement	Variable X		Variable Yi	
		Amount	X	Amount	X
1.	Tall	6	13.95	e	13.95
2.	Currently	U	25,56	21	46.84
3.	Low	22	51.17	13	30.23
4.	Very low	4	9.30	2	4.85
5.	Tall	a	-	1	2.33
Amount		43	100	43	100

Source: Research Results

Furthermore, in the high measurement category, the two variables are seen; X and Yi both means have a high percentage. In mans 25.58% of respondents have received social supervision well from indigenous people, and in the Yi variable we see that 48.84% have realized their attachment to the environmental community. On the other hand, if we look at the very low category measurement, both X and Yi variables both show a low percentage. In variable X, it is seen that not a single Indonesian citizen of Chinese descent has ever received social supervision from a native Indonesian citizen. And in the same measurement of the Yi variable, there is only one respondent who has not felt his attachment to the community. All of this shows that the two variables X and Yi have a close relationship. From the description, we can say that the two variables X and Yi have a close relationship or in the sense that there is a significant relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to their environment. The next step is to look at the close relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to the surrounding community.

Third Sub Hypothesis Testing

There is a significant relationship between the social supervision received from native Indonesian citizens and the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment. Based on the results of statistical calculations on the second sub-hypothesis aspect, the relationship between social supervision received by Indonesian citizens of descent and the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment obtained a t-count score of 3.50, while the critical value of t is contained in table 2 at TS 0.05 and db = 41 for the two-sided test, the t table value is 2021. From the 22 statistical calculations above, it shows that t count is greater than the critical value of possible t contained in table 3, namely $3.50 > 2.021$. The provision of Ho is accepted if t count

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is less than or equal to t table. So from the calculation results, it can be seen that H_0 is rejected and H_1 is accepted, which means that there is a significant relationship between social supervision received from native Indonesian citizens and the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment. Furthermore, to take a deeper look at the relationship between the two social control variables received by Indonesian citizens of Chinese descent and their willingness to cooperate with members of the community in their environment.

Table 3: Distribution of Respondents by Measurement Category The Relationship Between Social Supervision Received by Indonesian Citizens Chinese Descendants And Willingness To Cooperate Between Indonesian Citizens of Chinese descent with members Communities in the Environment

No	Category Measurement	Variable X		Variable Ys	
		Amount	X	Amount	X
1.	Tall	3	13,95	9	20.93
2.	Currently	11	25.56	23	53.49
3.	Low	22	51.17	10	23.25
4.	Very low	4	1,30	1	2.33
5.	Tall	0	\sum	0	* 8
Amount		43	100	43	100

Source: Research Results

Based on the distribution of respondent data in table 3, we can say that the two variables X and Ys also have a strong correlation as in testing the main hypothesis and the other second sub-hypothesis. We see that in the very high measurement category, there are 13.95% or 6 respondents who receive very good social supervision from indigenous people. And it is proven that in the Ys variable, there are 20.93 respondents who submit their willingness to cooperate very well with indigenous people. In the high measurement category, it can be seen that the percentage of respondents' distribution of both variables is equally high, namely in the X variable, it can be seen that 25.58% of respondents have received good social supervision from indigenous people. In the Ys variable, we see 53.49% of respondents show good cooperation with indigenous people. The very low measurement category also shows the same correlation where it is seen that none of the respondents experienced never receiving social supervision from indigenous people, and also none of the respondents who worked with indigenous people.

CONCLUSION

To provide a more detailed description and understanding of the research results, the researchers classified the conclusions according to the research hypothesis testing. There is a significant relationship between the social supervision received by Indonesian citizens of Chinese descent and their integration with indigenous Indonesian citizens. From the results of the study, it is proven that there is a significant relationship between social supervision received by Indonesian citizens of Chinese descent and its integration with native Indonesian citizens. The social supervision in question is in the form of real actions carried out by native Indonesian citizens experienced by Indonesian citizens of Chinese descent in the form of invitations, guidance, reprimands, sanctions based on religious norms, moral/social norms and legal norms. Meanwhile, social integration is the creation of a common life based on the existence of an attachment to the community in the environment, the willingness to cooperate with members of the community and share the same values as members of the community.

Testing the first sub-hypothesis. There is a significant relationship between the social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to the surrounding community. The results of the study prove that there is a significant relationship between social supervision received from native Indonesian citizens and the attachment of Indonesian citizens of Chinese descent to the surrounding community. The attachment here is the willingness to become a volunteer for the benefit of the community, the willingness to prioritize the interests of the community, the willingness to resolve conflicts that arise in the community, involvement in community service, providing time for the benefit of the community, willingness to carry out committee duties, sensitivity to activities. - RW/RT activities and willingness to contribute advice and infrastructure for the benefit of the community. As residents of the Babakan village, Indonesian citizens of Chinese descent are an inseparable part of other indigenous citizens and are part of a social system.

Testing the second sub-hypothesis. There is a significant relationship between the social supervision received from native Indonesian citizens and the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment. The results of the study prove that social supervision received from native Indonesian citizens

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has a relationship with the willingness to cooperate between Indonesian citizens of Chinese descent and members of the community in their environment. celebrations, involvement in national holiday celebrations, willingness for dialogue/discussions, asking for assistance from indigenous people to deal with problems, opportunities to express opinions at meetings, appreciation for the opinions expressed and willingness to be included in meetings. The willingness to cooperate with Indonesian citizens of Chinese descent with members of the community in their environment is quite good, but still needs to be improved. The willingness to cooperate arises because the efforts made by the government and the local community directly involve them in various community activities, such as siskamling, social gathering, religious group activities. In this condition, Paul B. Horton, Chester L. Hunt, said that informal social control is needed but not formal social supervision or coercion.

Testing the third sub-hypothesis. There is a significant relationship between social supervision received from native Indonesian citizens and the growth of the same values between Indonesian citizens of Chinese descent and fellow members of the community. the relationship with the growth of the same values between Indonesian citizens of Chinese descent and fellow members of the community. The growth of the same values refers to the willingness to visit native Indonesian citizens' homes, greeting each other when they meet, acceptance as family when married to indigenous people, attitudes when empowered by indigenous people, responding to reprimands, willingness to send gifts on big holidays and attitude towards differences of opinion and attitude to support Indonesia in the arena of international events such as sports competitions. There is a small number of people who say that the failure to integrate Indonesian citizens of Chinese descent with indigenous people is due to differences in religious background with the religion of the majority of Indonesian people (Islam). This assumption is not true. We see that in general the respondents are Christians, but the results of hypothesis testing show that they are well integrated. So, religion is not a barrier in the integration process.

The implications of this research are: It is necessary to increase the role of the Neighborhood Association groups and social organizations, such as the KIDP social gathering, religious activity groups, Youth Organizations, so that they can truly become a communication forum and mediator in the context of integrating the community. The integration of the community is quite good, the interaction between fellow residents has begun to be seen, therefore, in this situation, informal social supervision is needed that is persuasive, motivating, but not formal social supervision.

REFERENCE

- 1) H. Junus Jahja, 1991 (ganti warnah hitam). Nazir, Moh. (1988). *Research methods*. Third Printing. Jakarta: Ghalia Indonesia
- 2) Compass. October 22, 1979. *Youth Pledge Has Rita Implemented the Development of National Unity*
- 3) Compass. 2 November 1979. *Non-Indigenous Issues*. Reader's Letter.
- 4) Koentjaraningrat. October 27, 1988. *Attitude of Rentals Takes Off National Integration*.
- 5) Yudohusodo Siswono. (1985). *New Citizens of Chinese Cases in Indonesia*. Jakarta: Padamu Negeri Foundation Publishing Agency.
- 6) Horton B. Paul, Horton L. Robert and Hermanson Roger H. (1982). *Introduction to Sociology*. Third Edition. Homewood, Illinois.
- 7) Horton, B. Paul and Chester L. Hunt. (1984) *Sociology*. London: MC. Graw Hill Inc.
- 8) Devore Wynetta and Schlesinger G. Elfriede. (1986). *Ethnic Sensitive Social Work Practice*. Columbus, Toronto, London, Sydney. Bell and Howell Company.
- 9) Hidayat Z.M. (1977) *Indonesian Chinese Society and Culture*. Bandung: Tarsito.
- 10) Hidayat Z.M. (1977) *Indonesian Chinese Society and Culture*. Bandung: Tarsito.
- 11) Kansil (1977-ganti hitam warnah). Peter R Day. (1981). *Social Work and Social Control*. London and New York: Tavistock Publications.
- 12) Suparlan Y.B. (1990). *Karons Term Social Work*. Yogyakarta: Karnisius.
- 13) Soerjono Soekamto & Heri Tjandrasari. (1987). *Social Control*. First Print. Jakarta: CV. eagle.
- 14) Suparlan Y.B. (1990). *Karons Term Social Work*. Yogyakarta: Karnisius.
- 15) Popono, David. (1982). *Sociology, Frenstoe-Hall Inc*. Englewood. New Jersey.
- 16) Light JR. and Suzane Keller. (1982). *Sociology*. New York: Alfred A. Knopf Inc.
- 17) KeClung Lee, Alfred. (1953). *Principles of Sociology*. New York: Barnes & Neble, Ino.
- 18) Lowry P. and Rankin. (1972). *Sociology*. New York: Charles Scribner's Sons,
- 19) Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius.
- 20) Sukarna. (1990). *Social Control / Community Control. Printing I*. Bandung: PT. Image of Aditya Bakti.

The Relationship Between Social Supervision Received by Indonesian Citizens of Chinese Decision and its Integration with the Original Indonesia in Babakan Sub-District Bandung

- 21) Herraud, Brian J. (1973). *Sociology and Social Work*. New York: Pergamon Press Inc
- 22) Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius
- 23) Soerjono Soekamto. (1987). *Sociology An Introduction*. Third New Edidi. Jakarta: CV. eagle.
- 24) Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.
- 25) Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.
- 26) Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.
- 27) Robert M. Z, Lawang. (1988). *Classical and Modern Sociological Theories*. Jakarta: PT. grammar.
- 28) Horton B. Paul & Chester L. Hunt (1968). *Sociology. Second Edition*. New York, St. Louis, San Francisco, Toronto, London, Sydney: McGraw-hill Book Company.
- 29) Hendropuspito D. (1989). *Systematic Sociology. First Print*. Yogyakarta: Kanisius
- 30) David R Cox. (1980). *Migration and Integration in the Australian Context, An Introduction to the Helping Professions*. University of Melbourne.
- 31) Suparlan Y.B., Raohmanto Widjopranoto & Pardiman S. (1983). *Dictionary of Social Welfare Terms*. First Print. Yogyakarta: Author's Library.
- 32) Ogburn William E. & Meyer F. Nimkoff. (1984). *Sociology*. Fourth Edition. Boston: Houghton Mifflin Company.
- 33) Rankin, Lowry P. (1972). *Sociology*. New York: Charles Scribner's Song
- 34) Prism No. 3, June (1973). *Settlement of the Overseas China Problem, In Order to Improve National Defense and Security*. Year II. LP3ES.
- 35) Singarimbun Masri & Sofian Effendi (Editors). (1989). *Survey Research Methods*. First Printing .Jakarta: PT. Midas Surya Grafindo.
- 36) Murray OK Ross and Lappin B. tf. (1967). *Community Organization, Theory, Principles, and Practice. Second Edition*. New York, Evanston, London: Harper & Row, Publishers.
- 37) Siegel, Sydney. (1990). *Non-parametric Statistics, for Social Sciences*. Jakarta: PT. grammar.
- 38) Syamsuddin AB. (2017) *Theory Of Social Research Methods*. Wade Group Publisher, Ponorogo



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Implementation of the Principle of Dominus Litis in Positive Law in Indonesia

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ABSTRACT: Prosecutors are central figures in the administration of criminal justice because they have the authority to determine cases (dominus litis) to be forwarded to the courts. However, in fact, the application of the Dominus Litis principle is not optimal, such as the implementation of horizontal supervision and the termination of cases. examines the application of the principle of dominus litis to positive law in Indonesia. Normative legal research with the Approach of the Act; futuristic and comparative. The application of the Dominus litis Principle in the Criminal Procedure Code is contained in Article 1 Number (6) letters a and b; 139, as the principle of functional differentiation in Articles 14 and 137, based on the position and function of the prosecutor in the criminal justice system is regulated in Article 140 paragraph (2); Law No. 11 of 2021 Amendment to Law No. 16 of 2004 and Constitutional Court Decision No. 55/PUU-XI/2013 and No. 29/PUU-XIV/2016. Draft Criminal Procedure Law (RUU-KUHAP) Article 8 paragraph (1); 12 Subsections (8); 42 Subsections (1) Letters (b) and 46 Subsections (3) and (4). Prosecutors in Indonesia are in the Executive Institution, have several principles, do not have investigative authority; the scope of criminal, civil and administrative prosecutions of the State and not being double nature of the prosecutors and the macau in the Judiciary, focused on the principle of legality, has the authority to investigate, prosecuting criminal and civil prosecutors and is double nature of the prosecutors. Draft Criminal Procedure Law (RUU-KUHAP) Article 8 paragraph (1); 12 Subsections (8); 42 Subsections (1) Letters (b) and 46 Subsections (3) and (4). Prosecutors in Indonesia are in the Executive Institution, have several principles, do not have investigative authority; the scope of criminal, civil and administrative prosecutions of the State and not being double nature of the prosecutors and the macau in the Judiciary, focused on the principle of legality, has the authority to investigate, prosecuting criminal and civil prosecutors and is double nature of the prosecutors. Draft Criminal Procedure Law (RUU-KUHAP) Article 8 paragraph (1); 12 Subsections (8); 42 Subsections (1) Letters (b) and 46 Subsections (3) and (4). Prosecutors in Indonesia are in the Executive Institution, have several principles, do not have investigative authority; the scope of criminal, civil and administrative prosecutions of the State and not being double nature of the prosecutors and the macau in the Judiciary, focused on the principle of legality, has the authority to investigate, prosecuting criminal and civil prosecutors and is double nature of the prosecutors.

KEYWORDS: Dominus litis, law, criminal justice system

I. INTRODUCTION

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In general, the criminal justice system can be interpreted as a process of working several law enforcement agencies through a mechanism that includes gradual activities starting from investigations, investigations, prosecutions, examinations in court trials, and the implementation of judge decisions carried out by correctional institutions.¹

The criminal justice system in Indonesia consists of material and formal criminal law. The Indonesian criminal justice system adheres to the concept that criminal cases are disputes between individuals and society (the public) and will be resolved by the state as representatives of the public.² meaning that the state plays a role in representing the victims. After Indonesia became independent based on the provisions of Article II of the transitional rules, the provisions of the Criminal Procedure Code

¹Supriyanta, KUHAP and INTEGRATED CRIMINAL JUSTICE SYSTEM, Journal of Legal Discourse, VOL. VIII, NO.1, APRIL 2009, p. 1

²Luhut M. Pangaribuan, Criminal Procedure Law: Official Letter of Advocate in Court. Papasa Sinar Sinanti, Jakarta, 2014, page 18

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regulated in the Het Herziene Inlandsche Reglement (HIR) remained in effect, but since 1981 Indonesia has not used HIR, Indonesia already has Law no. 8 of 1981 concerning the Criminal Procedure Code (KUHAP).

KUHAP is a derivative of Pancasila as the highest norm, Hans Kelsen calls it Grundnorm, while Nawaisky as Staatfundamentalnorm.³The Criminal Procedure Code is the legal basis for law enforcement officers such as the Police, Prosecutors, Courts and Correctional Institutions to carry out their respective duties and authorities. This book regulates the investigation, investigation, prosecution, trial, as well as the implementation of court decisions which are the procedures for the settlement of a criminal act.

As one of the law enforcement officers, the Prosecutor is mandated to exercise state power in the field of prosecution carried out by the Public Prosecutor which, if interpreted etymologically, comes from the word "prosecution" which comes from the Latin prosecutus, which consists of the words "pro" (before) and "sequi" (to follow). Referring to the etymological meaning of the word "Public Prosecutor" and associated with the role of the Prosecutor's Office in a criminal justice system, the Prosecutor's Office should be viewed as Dominus Litis (procuruer die de procesvoering vastselat), namely controlling the case process from the initial stages of the investigation to the execution of a decision. .

In almost every country in the world, prosecutors are central figures in the administration of criminal justice, because prosecutors play an important role in the decision-making process. Even in countries where prosecutors do not carry out their own investigations, for example in Indonesia, prosecutors still have broad prosecution discretion. In other words, the prosecutor has the power to decide whether or not to prosecute almost any criminal case. Therefore, it is not surprising that the High Judge of the German Federation, Harmuth Horstkotte gave the nickname to the prosecutor as "the boss of the litigation process" (master of the procedure).⁴Because of the magnitude of this authority, Hamzah stated that the prosecutor was free to determine the regulations that would be used to indict the perpetrators.⁵

However, in fact the problem in the application of the Dominus Litis principle in the Criminal Procedure Code is the division of the investigation and prosecution subsystem so that its application is not optimal, such as horizontal supervision and case termination. Supervision in pre-prosecution institutions. But in fact, the pre-prosecution institution has proven to be ineffective in achieving its goal of being a means of functional coordination, as well as supervision of the public prosecutor on the performance of investigators. As a result, the investigation process only becomes the investigator's domain and there are no checks and balances so that it tends to lead to a blurring of norms which then often proves cases at trial weak as stated by Stephen C. Thaman about prosecutors in various countries.⁶

Regarding the authority of the prosecutor to stop or continue the prosecution (See Article 140 paragraph (2) of the Criminal Procedure Code) which in practice this authority is rarely used by public prosecutors, because the termination of cases turns out to be more common at the investigation stage. Besides that, in general crimes, prosecutors do not have the authority to intervene in the termination of investigations carried out by investigators (See Article 109 Paragraph (2) of the Criminal Procedure Code). Given such a fact, is it still said that the prosecutor is the owner of the case (the Dominus Litis principle)?

II. METHOD

Normative legal research with an Act approach; futuristic and comparison. The laws used are Law No. 8 of 1981; Law No. 15 of 1961; UUNo. 5 1991; Law No. 11 of 2021 is an amendment to Law No. 16 of 2004. A futuristic approach by utilizing the Kuhap Design while the comparison is its application in Indonesia and the PRC, especially Macau. The analysis used includes extensive, anticipatory and teleological interpretations.

III. DISCUSSION

The authority to make prosecutions is actually the absolute monopoly of the public prosecutor, which is commonly known as the dominus litis principle. The dominus litis principle emphasizes that no other body has the right to prosecute other than the public prosecutor, which is absolute and monopoly. The Public Prosecutor is the only institution that owns and has a monopoly on the prosecution and settlement of criminal cases. The judge cannot request that the criminal case that has occurred be

³Oetojo Oesman and Alfian book Pancasila as an ideology in various fields of life in society, nation and state, BP 7 Pusat, Jakarta, 1991, p. 67-75

⁴RM, Surachman and Andi Hamzah, Prosecutors in various countries, roles and positions, Sinar Graphic, Jakarta, 1996, p. 7

⁵Andi Hamzah, Indonesian Criminal Procedure Code Revised Edition, Sinar Graphic, Jakarta, 2001, p. 161

⁶Ichsan Zikry et al, Pre-prosecution now, Hundreds of thousands of cases are kept, Hundreds of thousands of cases are missing: Research on the implementation of the Pre-prosecution mechanism in Indonesia in 2012-2014, LBH Jakarta & MaPPI FHUI, Jakarta, 2016, p. 3

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submitted to him, because the judge in the settlement of the case is only passive and waits for demands from the public prosecutor.⁷

In the criminal justice process in Indonesia, the prosecutor is one part of the criminal justice system that controls the case handling process or dominus litis, because the prosecutor can determine whether a case can be brought to court or not based on valid evidence according to criminal procedural law.⁸This means that the prosecutor is the official authorized to determine whether a case is appropriate to be submitted to the prosecution or the prosecution must be terminated. The prosecutor's authority to stop or continue the prosecution process is also free to apply which criminal regulations will be indicted and which are not in accordance with the conscience and professionalism of the prosecutor himself, because in public prosecution there is a dominus litis principle (the ruler/controller of the case), so he is free to determine which criminal regulations will be indicted and which will not.⁹

An event that is reasonably suspected to be a criminal act must immediately take the necessary actions to resolve it by conducting an investigation, investigation, prosecution and examination in court.¹⁰Two components that are the gateway to the law enforcement process in the criminal justice system are the police and prosecutors. Police as investigators and prosecutors as public prosecutors. These two institutions determine the fate of a citizen who becomes a suspect, then a defendant and then a convict. The relationship between the Prosecutors and the Police is a complex one. The community sees that the police and prosecutors are inseparable partners but in practice internally there are often conflicts between the police and the prosecutor's office in carrying out their respective duties.

The prosecutor's authority over the application of the dominus litis principle in positive law in Indonesia is to stop or continue the prosecution. However, in practice, this authority is rarely used by public prosecutors, because the termination of cases turns out to be more common at the investigation stage where for cases handled by investigators, especially general criminal cases, prosecutors do not have the authority to interfere in the termination of investigations carried out. by investigators in accordance with Article 109 of the Criminal Procedure Code. Given such facts, can it still be said that the prosecutor is the master of the case (dominus litis)?

A. Application of the Dominus litis Principle Based on Law Number 8 of 1981 concerning the Criminal Procedure Code (KUHAP)

In Law No. 8 of 1981 concerning the Criminal Procedure Code (KUHAP) adheres to the principle of functional differentiation. This principle states that every law enforcement officer in the criminal justice system has its own duties and functions that are separate from one another. The Criminal Procedure Code that adheres to the principle of functional differentiation will raise a question about the position of the dominus litis principle in the Criminal Procedure Code if it is combined with the criminal justice process which contains the principle of functional differentiation.

KUHAP which adheres to the principle of functional differentiation not only differentiate and dividing the duties and authorities, but also providing a bulkhead of accountability for the scope of duties of investigation, investigation, prosecution and examination in an integrated court. The criminal justice system (Integrated justice system) is defined as a criminal process which is an integration of an investigation sub-system, a prosecution sub-system to an examination sub-system at trial and ends with a sub-system of implementing court decisions.

The Prosecutor's Office in criminal law acts as a functional institution authorized by law to act as a public prosecutor and implement court decisions that have permanent legal force and other powers based on the law.

The Prosecutor has been placed in a position as a "Prosecutor" agency with the authority to prosecute each case, including:¹¹

- 1) On the one hand, receiving the case file as the result of the investigation from the investigator;
- 2) On the other hand, the case files he receives are transferred to the judge to be prosecuted and examined in court proceedings.

⁷Application of the Dominus Litis Principle in the KPK Law <https://www.Hukumonline.com/berita/a/penerapan-asas-dominus-litis-dalam-uu-kpk-lt5ddf8ba3bb064> Retrieved October 4, 2022.

⁸Marwan Effendy, RI Attorney General's Office: Position and Functions from a Legal Perspective, Jakarta: PT. Gramedia Pustaka Utama, 2005, p. 105.

⁹Andi Hamzah, Indonesian Criminal Procedure Code Revised Edition, Jakarta: Sinar Graphic, 2001, p. 161.

¹⁰Erni Widhayanti, The Rights of the Suspect/Defendant in the Criminal Procedure Code, Yogyakarta: Liberty, 1996, p. 48.

¹¹M. Yahya Harahap, Discussion of Problems and Application of the Criminal Procedure Code (Second Edition) series: investigation and prosecution, Jakarta: Sinar Graphic, 2000, page 26.

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The task of the prosecutor as a public prosecutor is regulated in article 14 of the Criminal Procedure Code and reaffirmed in article 137 of the Criminal Procedure Code which states that:

Article 14 KUHAP:¹²The public prosecutor has the authority to:

- a. Receive and examine investigation case files from investigators or assistant investigators;
- b. Conduct pre-prosecution if there are deficiencies in the investigation by taking into account the provisions of Article 110 paragraph (3) and paragraph (4), by providing instructions in the context of completing the investigation from the investigator;
- c. Provide an extension of detention, carry out further detention or detention and or change the status of the detainee after the case has been delegated by the investigator;
- d. Make an indictment;
- e. Delegating the case to court;
- f. Delivering notification to the defendant regarding the provisions on the day and time the case will be heard accompanied by a summons, both to the defendant and to witnesses, to come at the hearing that has been determined;
- g. Carry out prosecutions;
- h. Closing the case for the sake of law;
- i. Carry out other actions within the scope of duties and responsibilities as a public prosecutor according to the provisions of this law;
- j. Carry out the judge's decision.

Article 137 of the Criminal Procedure Code:¹³

"The public prosecutor has the authority to prosecute anyone who is accused of committing a criminal act within his jurisdiction by delegating the case to a court that is competent to hear".

Based on the explanation that the compiler has described above, if you look back at the definition of the functional differentiation principle contained in the KUHAP wherever law enforcement officer in the criminal justice system has its own duties and functions that are separate from one another, so according to the compiler's perspective, the prosecutor's office in Indonesia is no longer dominus litis in a criminal case because the relationship between the Police as investigators and the authority of the Prosecutor's Office as a public prosecutor must be seen in terms of division of powers, not viewed as separation of powers. authority). The purpose of this division is to monitor each other so that it will create a synergy in the law enforcement process in Indonesia.

B. Application of the Dominus Litis Principle based on Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia

The existence of the Prosecutor's Office as a law enforcement institution has a central position and a strategic role in a legal state because it functions as a filter between the investigation process and the examination process in court, so that its presence in people's lives must be able to carry out law enforcement duties.¹⁴

To be able to understand the application of the dominus litis principle in positive law in Indonesia at the prosecution stage, it would be possible to examine the arrangements contained in Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia. If we look closely at the law regarding the position of the Indonesian Attorney General's Office in law enforcement in Indonesia, it becomes clearer and clearer that in a limited manner it has formulated the existence of an absolute prosecutorial authority, thus confirming that the dominus litis principle exists in carrying out its duties and authorities. prosecution of the occurrence of criminal acts by the Prosecutor as the public prosecutor.

Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia in a general explanation states that the enactment of this Law is to reform the Prosecutor's Office so that its position and role as a government institution can carry out more State power in the field of prosecution. free from the influence of any party's power.

In the provisions contained in Article 1 Point 2 of Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia, it is determined that:¹⁵

¹²Law Number 8 of 1981 concerning Criminal Procedure Code (KUHAP), Article 14.

¹³Ibid., Article 137 of the Criminal Procedure Code.

¹⁴Gita Santika, "The Role of the Prosecutor's Office in Realizing Restorative Justice as an Effort to Combat Crime" (Progressive: Jurnal Hukum Vol. XVI/No.1/June 2021), p. 79.

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"Prosecutors are civil servants with functional positions that have specificity and carry out their duties, functions and authorities based on the law".

The provisions relating to the application of the dominus litis principle for the Prosecutor are rules (laws) that must be guided in carrying out the inherent duties and authorities, which are absolute and independent, making prosecution the main task so that this principle will strengthen and strengthen the Prosecutor. as a public prosecutor in carrying out prosecutions of criminal cases that occur, and only prosecutors who are proportional and professional can determine whether or not the criminal cases that occur are resolved.

Article 8 Paragraph (2) of Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia states that in carrying out their duties and authorities, the Prosecutor acts for and on behalf of the state and is responsible according to hierarchical channels. This gives an understanding in carrying out tasks on behalf of the state. The prosecutor as a public prosecutor is responsible according to a hierarchical channel, namely to officials who assign tasks and responsibilities which are in stages the Head of the District Attorney, the Head of the High Prosecutor's Office and the Attorney General.

The actions of the Prosecutor before carrying out the prosecution of a criminal case to the court are as follows:¹⁶

- 1) Studying and researching criminal case files received from investigators. Is it strong enough and there is sufficient evidence that the defendant has committed a crime. If in his opinion, the case file is incomplete, immediately return the case file to the investigator for completion.
- 2) After obtaining a clear and definite picture of the existence of a criminal act committed by the defendant, on that basis the Prosecutor makes an indictment. The prosecutor must prove his indictment in court. If the indictment is proven, then the Prosecutor will draw up his charges. The basis for compiling a claim is from the indictment.

The duties and authorities of the prosecutor's office in criminal justice based on Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia are as follows:¹⁷

- a. Carry out prosecutions;
- b. Carry out judges' decisions and court decisions that have permanent legal force;
- c. Supervise the implementation of conditional criminal decisions, supervisory criminal decisions, and parole decisions;
- d. Conduct investigations into certain criminal acts based on the law;
- e. Completing certain case files and for this purpose can carry out additional examinations before being transferred to the court which in its implementation is coordinated with investigators.

Based on the explanation that the compiler has described above, related to the application of the dominus litis principle based on Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia, it is clear that in an application of the dominus litis principle (controller/case owner)) at the prosecution stage, in this case, if it is related to the duties and authority of the prosecutor, it is to carry out prosecutions that are free from the influence of any party's power.

The Constitutional Court as the sole interpreter of the constitution (single interpreter of the constitution) and the guardian of the constitution (protector of the constitution) in various legal considerations, explicitly places the prosecutor as the public prosecutor as dominus litis in criminal cases. This is based on the decision of the Constitutional Court Number 55/PUU-XI/2013 which states that:¹⁸

"The function of the Prosecutor's Office and the prosecutor's profession as organizers and controllers of prosecutions or as dominus litis have an important role in the process of handling cases, which in essence aim to build a life system based on law and uphold human rights."

In addition to the Constitutional Court's decision above, there is also the Constitutional Court's decision Number 29/PUU-XIV/2016 which states:¹⁹ "As the sole holder of the prosecution authority (dominus litis), the Prosecutor is obliged to delegate the case to the District Court with a request to immediately try the case accompanied by an indictment, but the

¹⁵Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia, Article 1 Point 2.

¹⁶Evi Hartanti, *Corruption Crime*, Jakarta: Sinar Graphic, 2009, p. 37.

¹⁷Djunaedi, "Juridical Review of Prosecutors' Duties and Authorities for the Achievement of Justice Values", *Journal of Legal Reform*, Volume I No.1 January –April 2014, p. 87.

¹⁸Constitutional Court Decision Number 55/PUU-XI/2013, p. 70.

¹⁹Constitutional Court Decision Number 29/PUU-XIV/2016, p. 99.

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Prosecutor can also stop the prosecution. criminal case, or the case is closed for the sake of law (vide Article 140 of the Criminal Procedure Code)".

According to the perspective of the compilers of the two Constitutional Court decisions that have been described above, the Constitutional Court explicitly mentions the dominus litis principle clearly and clearly considering the position of the prosecutor as a public prosecutor as dominus litis who has an important role in the criminal justice system. The public prosecutor is positioned as the owner of a case that has a real interest so that a case is prosecuted, examined, and tried in court. In addition, the Constitutional Court also considers that as a party with a real interest, the public prosecutor can also stop the prosecution so that a case is not prosecuted, examined, and tried in court.

Although so far there are only 2 (two) decisions of the Constitutional Court that explicitly consider the position of the public prosecutor as dominus litis in the criminal justice system, according to the authors, it is sufficient to acknowledge that the dominus litis principle is the position of the public prosecutor/prosecutor in the criminal justice system for create legal certainty in every decision and strengthen the criminal justice system that should be integrated.

C. The Dominus Litis Principle in Indonesian Criminal Law Policy in the future in terms of the Draft Criminal Procedure Code (RUU-KUHAP)

Criminal law policy is basically a whole set of regulations that determine what actions are prohibited and are included in criminal acts and how sanctions are imposed on the perpetrators with the aim of preventing crime. In this case, Marc Ancel is of the opinion as quoted by Barda Nawawi Arief who stated:²⁰

"Penal policy is a science that has a practical purpose to enable positive legal regulations to be formulated better and to provide guidance not only to legislators, but also to courts that apply laws and also to organizers or implementers. sentence."

The dominus litis principle in Indonesian criminal law policy in the future is intended to tackle criminal acts that occur through prosecution as a form of community protection to achieve community welfare, considering that crime prevention policies or efforts (criminal policy) are essentially an integral part of community protection efforts (social protection). defense) and efforts to achieve social welfare.²¹Therefore, the policy of having the authority to prosecute is also part of the effort to protect society (social defense) and to achieve social welfare.

Regarding the application of the dominus litis principle in Indonesian criminal law policies for the future from the perspective of the compiler, it is necessary to explore the Draft Law (RUU) of the Criminal Procedure Code in depth. In the Draft Criminal Procedure Code, in fact there is no regulation from article to article which clearly states that the public prosecutor is the coordinator of the investigation. However, if we read the articles in the RUU KUHAP, there is an illustration that the investigation system in the RUU KUHAP is open with the role of the public prosecutor as supervisor of the actions taken by the Police as investigators.

1. Article 8 paragraph (1) of the Draft Criminal Procedure Code

The provisions contained in Article 8 Paragraph (1) of the Draft Criminal Procedure Code states:²²

"In conducting an investigation, the investigator coordinates with the public prosecutor"

Referring to the provisions of Article 8 Paragraph (1) of the Draft Criminal Procedure Code above according to the perspective of the compiler that, This article is the basis of the relationship between investigators and public prosecutors in an integrated criminal justice system. However, the provisions contained in this article have not been able to answer whether the relationship between investigators and prosecutors is institutional in law enforcement.

2. Article 12 Paragraph (8) of the Draft Criminal Procedure Code

The provisions contained in Article 12 Paragraph (8) of the Draft Criminal Procedure Code states:²³

"In the event that the investigator does not respond to the report or complaint within a period of (14) fourteen days, the reporter or complainant may submit the report or complaint to the local public prosecutor."

Then Article 12 Paragraph (9) of the Draft Criminal Procedure Code also states:²⁴

"The public prosecutor is obliged to study the report or complaint as referred to in paragraph (8) and if there are sufficient reasons and initial evidence of a criminal act, within a period of 14 (fourteen) days the Public Prosecutor is obliged to ask the investigator to conduct an investigation and show what crime was committed. that can be suspected and certain articles in the law"

²⁰Barda Nawawi Arief, Anthology of Criminal Law Policy Development of the Concept of the New Criminal Code, 1st Edition, Jakarta: Kencana Prenadamedia Grub, 2008, p. 26.

²¹Barda Nawawi Arief, Anthology of Criminal Law Policy, Bandung: Citra Aditya Bakti, Bandung, 2002, p. 73.

²²Draft Law of the Republic of Indonesia Number ... Year ... Regarding Criminal Procedure Code, Article 8 Paragraph (1).

²³Draft Law of the Republic of Indonesia Number ... Year ... Regarding Criminal Procedure Code, Article 12 Paragraph (8).

²⁴Ibid., Article 12 Paragraph (9).

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Based on the provisions contained in Article 12 Paragraph (8) and Article 12 Paragraph (9) of the Draft Criminal Procedure Code which has been described above according to the perspective of the compiler, the arrangement in this article changes a conception contained in the Criminal Procedure Code in the coordination relationship between the public prosecutor and the investigator. This provides an understanding that the Draft Criminal Procedure Code has an open system with no sharp gap between investigators and public prosecutors. Public prosecutors are expected to be able to monitor the performance of investigators in following up on the results of public reports/complaints, thereby minimizing "selective" prosecution in a case.

3. Article 46 Paragraphs (3) and (4) of the Draft Criminal Procedure Code

The provisions contained in Article 46 Paragraphs (3) and (4) of the Draft Criminal Procedure Code state:²⁵

Article 46 Paragraph (3)

"If the public prosecutor still finds deficiencies in the case file, the public prosecutor may ask the investigator to carry out additional investigations by providing direct instructions or may carry out additional examinations before being delegated to the court which is coordinated with the investigators".

Article 46 Paragraph (4)

"In the next case examination, if certain legal actions are needed to facilitate the implementation of a trial in court or carry out a judge's determination, the public prosecutor can take legal action on his own or ask for assistance in carrying out an investigation".

From the explanation of the provisions of the article above, according to the perspective of the compiler, it is a grant of legitimacy for the Public Prosecutor to carry out a Nasporing (advanced investigation) in the Draft Criminal Procedure Code. For further investigation, it has also been regulated in the Prosecutor's Bill contained in Article 30. So the main reason for regulating the nasporing of public prosecutors is regulated in the KUHAP Bill. Whereas all parties should have the same perception and goal, namely resolving criminal cases.

D. Comparison of Prosecution of Criminal Cases in Indonesia with China (Macao)

The prosecution of criminal cases conducted by the People's Republic of China (Macao) is led directly by the Attorney General (Prosecutor General) whose main authority is in the field of criminal justice. But it also covers civil matters (including family law and employment). In the field of criminal justice, the prosecutor's office of the People's Republic of China (Macao) has the authority to:²⁶

- a. Receive accusations and complaints.
- b. Carry out an investigation
- c. Carry out prosecution (prosecution)
- d. Make an appeal
- e. Execute and take security measures.

The power to carry out investigations is the exclusive power of the prosecutor's office of the People's Republic of China (Macao). However, despite having full investigative powers, the People's Republic of China (Macao) should not conduct direct investigations. In daily life, this power is delegated to the police of the People's Republic of China (Macao), so that the prosecutor's office of the People's Republic of China (Macao) has never been technically involved in police investigations. However, the investigative powers granted entirely by law to the impartial and independent Macau prosecutor, are a guarantee of protection for the citizens of the People's Republic of China (Macao).²⁷

In addition to full investigative powers, the public prosecutor's office of the People's Republic of China (Macao) is given full powers to carry out prosecutions. After that the Macau prosecutor will analyze and determine whether the case in question is brought to court or not. Because the Prosecutor's Office of the People's Republic of China (Macao) adheres to the principle of legality, not the principle of opportunity, then as long as the evidence is sufficient and as long as the prosecutor is competent (legitimacy), the case will be brought to court.

The Procuratorate of the People's Republic of China (Macao) in carrying out the prosecution considers two things, namely:²⁸

- a. Is the evidence for the case at hand sufficient (sufficient evidence) or not.

²⁵Ibid., Article 46 Paragraphs (3) and (4).

²⁶Moh. Andika Surya Lebang and Rendi Kastra, "Comparison between the Role of the Prosecutor in Indonesia and the Role of the Prosecutor in the Macao Special Administration in the Criminal Justice System", Jurnal Cahaya Keadilan, Vol. 9 No. October 2, 2021, Law Studies Program at Putera Batam University, p. 8.

²⁷Ibid., p. 11.

²⁸Ibid., p. 13.

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- b. Whether for that case the prosecutor's authority (legitimacy) to sue or not. The differences in the roles of Indonesian prosecutors and the PRC (Macao) are as follows:

Table Comparison of the Roles of Indonesian and Macau Prosecutors

No	INDONESIA	MACAU
1	Government agencies	Judiciary
2	Have some basics	Focused on the principle of legality
3	Does not have the authority to conduct investigations	Has the authority to conduct investigations
4	The scope of prosecution consists of criminal, civil and state administration.	The scope of prosecution is only in criminal and civil cases.
5	Not double nature of the prosecutors	Double nature of the prosecutors.

IV. CONCLUSION

The application of the dominus litis principle in positive law in Indonesia is divided into two (2), namely: 1) Based on Law Number 8 of 1981 concerning the Criminal Procedure Code (KUHP), and 2) Based on Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia. In the Criminal Procedure Code there are the principle of functional differentiation which means: "Every law enforcement officer in the criminal justice system has its own duties and functions that are separate from one another". So based on the principle functional differentiation The Prosecutor's Office is no longer the dominus litis in a criminal case. But if based on the position and function of the prosecutor's office in the criminal justice system, the prosecutor's office occupies the dominus litis principle. Because the public prosecutor has a strategic position as the owner cases that must be actively involved from the beginning of the investigation, prosecution, examination at trial until the implementation of court decisions.

The dominus litis principle in Indonesia's future criminal law policy in terms of the Draft Criminal Procedure Code (RUU-KUHP) can be seen in several articles, including: Article 8 Paragraph (1), Article 12 Paragraph (8) and (9), Article 46 Paragraphs (3) and (4) as well as in Article 42 Paragraph (1) Letter (b) of the Draft Criminal Procedure Code.

Prosecutors in Indonesia are in the Executive Agency, have several principles, do not have investigative authority; the scope of criminal, civil and administrative prosecutions of the State and is not double nature of the prosecutors compared to Macau in the Judiciary, focused on the principle of legality, has the authority to investigate, prosecute criminal and civil as well as double nature of the prosecutors.

REFERENCES

BOOK

- 1) Andi Hamzah, Indonesian Criminal Procedure Code Revised Edition, Jakarta: Sinar Graphic, 2001,
- 2) Barda Nawawi Arief, Anthology of Criminal Law Policy Development of the New Criminal Code Concept, 1st Edition, Jakarta: Kencana Prenadamedia Grub, 2008,
- 3) Barda Nawawi Arief, Anthology of Criminal Law Policy, Bandung: Citra Aditya Bakti, Bandung, 2002
- 4) Erni Widhayanti, The Rights of the Suspect/Defendant in the Criminal Procedure Code, Yogyakarta: Liberty, 1996,
- 5) Evi Hartanti, Corruption Crime, Jakarta: Sinar Graphic, 2009, p. 37.
- 6) Kelik Pramudya and Ananto Widiatmoko, Guidelines for Professional Ethics of Law Apparatus, Jakarta: Pustaka Yustisia, 2010, p 39.
- 7) Luhut M. Pangaribuan, Criminal Procedure Law: Official Letter of Advocate in Court. Papasa Sinar Sinanti, Jakarta, 2014,
- 8) M. Yahya Harahap, Discussion of Problems and Application of the Criminal Procedure Code (Second Edition) series: investigation and prosecution, Jakarta: Sinar Graphic, 2000, page 26.
- 9) Marwan Effendy, RI Attorney General's Office: Position and Functions from a Legal Perspective, Jakarta: PT. Gramedia Pustaka Utama, 2005, p. 105.
- 10) Oetojo Oesman and Alfian book Pancasila as an ideology in various fields of life in society, nation and state, BP 7 Pusat, Jakarta, 1991,
- 11) Peter Mahmud Marzuki, Legal Research, Jakarta, Kencana, 2011,
- 12) Yahya Harahap, Discussion of Problems and Application of the Criminal Procedure Code, Jakarta: Sinar Graphic, 1985,

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JOURNAL

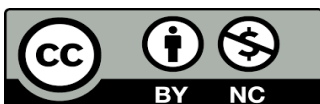
- 1) Ardilafiza, "Independence of the Prosecutor's Office as the Executor of Prosecution Power in the Indonesian Constitutional System", *Journal of the Constitution*, Volume III Number 2 November 2010, Jakarta,
- 2) Djunaedi, "Juridical Review of the Duties and Authorities of Prosecutors for the Achievement of Justice Values", *Journal of Legal Reform*, Volume I No.1 January –April 2014,
- 3) Gita Santika, "The Role of the Prosecutor's Office in Realizing Restorative Justice as an Effort to Combat Crime" (*Progressive: Jurnal Hukum* Vol. XVI/No.1/June 2021),
- 4) Ichsan Zikry et al, Pre-prosecution now, Hundreds of thousands of cases are kept, Hundreds of thousands of cases are missing: Research on the implementation of the Pre-prosecution mechanism in Indonesia in 2012-2014, LBH Jakarta & MaPPI FHUI, Jakarta, 2016, p. 3
- 5) Moh. Andika Surya Lebang and Rendi Kastr, "Comparison between the Role of the Prosecutor in Indonesia and the Role of the Prosecutor in the Macao Special Administration in the Criminal Justice System", *Jurnal Cahaya Keadilan*, Vol. 9 No. October 2, 2021, Law Studies Program at Putera Batam University, p.
- 6) Supriyanta, KUHAP and INTEGRATED CRIMINAL JUSTICE SYSTEM, *Journal of Legal Discourse*, VOL. VIII, NO. 1, APRIL 2009,
- 7) Tiar Adi Riyanto, "Functionalization of the Dominus Litis Principle in Criminal Law Enforcement in Indonesia" (*Journal of Lex Renaissance*, No. 3 Vol. 6 July 2021), p. 488.
- 8) Vivi Ariyanti, "Law Enforcement Policy in the Indonesian Criminal Justice System." (*Juridical Journal*, Vol. 6, No. 2, 2019),

LEGISLATION

- 1) 1945 Constitution of the Republic of Indonesia (UUD 1945)
- 2) Law Number 8 of 1981 concerning Criminal Procedure Code (KUHP).
- 3) Law Number 11 of 2021 concerning Amendments to Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia.
- 4) Law Number 15 of 1951 concerning the Basic Provisions of the Prosecutor's Office of the Republic of Indonesia
- 5) Law Number 5 of 1991 concerning the Prosecutor's Office of the Republic of Indonesia.
- 6) Law Number 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia.
- 7) Academic Paper of the Prosecutor's Bill on amendments to Law no. 16 of 2004 concerning the prosecutor's office, 2020.
- 8) Constitutional Court Decision Number 55/PUU-XI/2013.
- 9) Constitutional Court Decision Number 29/PUU-XIV/2016.
- 10) Draft Law of the Republic of Indonesia Number ... Year ... Regarding Criminal Procedure Law.
- 11) Draft Law Number... Year... concerning the Prosecutor's Office of the Republic of Indonesia.

INTERNET

- 1) *11 Guidelines on the Role of Prosecutors* <https://www.ohchr.org/en/instruments-mechanisms/instruments/guidelines-role-prosecutors> Retrieved September 8, 2022.
- 2) *The existence of the Dominus Litis principle in the decision of the Constitutional Court* <https://kumparan.com/muh-ibnu-fajar-rahim/eksisi-asas-dominus-litis-dalam-ujung-mahkamah-konstansi-1yA0HoUkV3r/2> Retrieved October 4, 2022.
- 3) Fachrizal: Leiden Researcher Initiates Dominus Litis Prosecutor in Handling Cases <http://fachrizal.lecture.ub.ac.id/2016/06/peneliti-leiden-gagas-dominus-litis-kejaksaan-di-handan-perkara/> Retrieved October 4, 2022.
- 4) How do a District Attorney and Prosecutor differ? <https://www.quora.com/How-do-a-District-Attorney-and-Prosecutor-differ> Retrieved 10 October 2022.
- 5) Offices of the United States Attorneys, <https://www.justice.gov/usao/justice-101/charging> Retrieved 10 October 2022.
- 6) *Application of the Dominus Litis Principle in the KPK Law* <https://www.hukumonline.com/berita/a/penerapan-asas-dominus-litis-dalam-uu-kpk-lt5ddf8ba3bb064> Retrieved October 4, 2022.
- 7) General Crimes, Dominus Litis <https://kejari-tebo.go.id/berita/detail/jaksa-agung-muda-tindak-pidana-umum--terbitnya-p19-merupakan-unjuk-asas-dominus-litis--yang-dimiliki> Retrieved October 4, 2022.



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Utilization of Kalamasi Orange Peel Extract as a Formulation Edible Film Mouth Freshening



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ABSTRACT: An accumulation of bacteria leads to an unbalanced level of oral acids, which results in non-fresh breath. It is anticipated that these issues will be solved by the flavonoids in Kalamansi orange peel acting as an antibacterial in edible films. This study was carried out to ascertain the composition of Kalamansi orange peel extract as an inventive mouth freshener edible film and to ascertain edible film formulation that satisfied the characteristics evaluation test and organoleptic test as a mouth freshener. Kalamansi orange peel was extracted by maceration with 70% ethanol which was then analyzed for its content. The edible film formulation was made into 5 formulation (0-4%). Each of which was tested for characteristics and organoleptic evaluation. The results showed that the content of Kalamansi orange peel extract met the requirements to be formulated in edible films, ethanol content test, yield, moisture content and qualitative tests of flavonoid compounds. The characteristic evaluation test, in each formulation of F0-F4 has reached the corresponding requirements. As for the evaluation test of thickness characteristics of 0.22-0.32 mm, pH of 6.72-7.25, disintegration time of 11-35 seconds and uniformity weight of 100-105 mg. In organoleptic tests, the panelists preferred formulation of edible film was 0% (without Kalamansi orange peel extract). In addition, there are significant differences between edible film (0-4%) and control (K+) in the parameters of color, aroma, texture, taste and refreshing activity.

KEYWORDS: Edible Film, Ethanol, Flavonoid, Kalamansi Orange Peel, Maseration

I. INTRODUCTION

Oral condition is something that requires special attention. Protecting a healthy oral cavity is the same as protecting a healthy body. Protecting oral condition can reduce the risk of infectious disease [1]. Oral condition related to unhealthy breath that can arise because of various factors, such as amass of *Streptococcus* *airus* bacteria [2]. Bacteria will produce volatile sulfur compounds (VSCs) which will disrupt the acid balance in the mouth that triggers unhealthy breath [3]. Non-fresh breather can be reduced by using mouthwash. However, long-term use of mouthwash has side effects such as dry mouth, decreased saliva production that affects bad breather and increases the risk of tooth decay [4].

WHO (World Health Organization) recommends traditional medicine in the national health care program because it is free from harmful side effects, easy to get, cheap and safe[1]. Therefore, it is necessary to innovate to overcome affordability, increase practicality, and create innovations that can be planned as edible films.

Edible film is a thin layer that can dissolve in the mouth when exposed to saliva. Edible film they have proven it to be safer to be consumed and does not cause side effects because it comes from natural ingredients, unlike mouthwashes [5].

A natural ingredient that can be applied is the peel of citrus crops. Citrus crops are one fruit that is in great demand by the people of Indonesia, which continues to develop by 70-80%. However, this growth also has a negative impact to utilizing orange peels that have not been used to the fullest. Citrus peels have many efficacious ingredients, such as flavonoids, that have antibacterial activity. One type of citrus crop peel that can be used is Kalamansi orange peel, which is expected to be an alternative as an edible mouth freshening film [6].

Analysis on flavonoid compounds on edible film to avoid non-fresh breath has been carried out. As research directed by [3], the benefit of celery leaves containing flavonoid compounds with a concentration of 2.5% and a research directed by [7], using kasturi bark with a concentration of 0.94% in edible film which also contains flavonoid compounds can reduce the problem of not fresh breath. However, there are no research on the benefit of Kalamansi orange peel. Flavonoid compounds in Kalamansi orange peel amounted to 10,958 mg/ml [8]. So, it is able to avoid the growth of bacteria that cause breather is not fresh. This

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research was conducted to measure the content of Kalamansi orange peel extract as an innovation of edible oral freshening film and to measure the formulation of edible film Kalamansi orange peel extract that meets the characteristic evaluation and organoleptic test as a mouth freshener.

II. EXPERIMENTAL SECTION

Materials

The materials used in this research were Kalamansi orange peel extract, 70% ethanol, gelatin, glycerol, sorbitol, glucose, peppermint oil, menthol, and aquadest.

Instrumentation

The instruments used were a sieve, petri dish, analytical balance, maceration bottle, oven, desiccator, simple distillation device, breaker glass, alcohol meter, magnetic stirrer, hot plate, edible film mold, micrometer scrup and pH meter.

Procedure

Sample preparation and Kalamansi orange peel extract

The analysis method started with the preparation of the Kalamansi orange peel samples, which were removed from the impurities and then dried. After drying, the Kalamansi orange peel is first cut into pieces and then mashed using a blender and it carried the process out with a 100 mesh sieve. Next, the maceration extraction process was carried out by taking as much as 500 grams of the sample powder and then putting it into a maceration bottle using 1 liter of 70% ethanol for 3×24 hours. It then evaporated the maceration results that have been obtained with the solvent composition through a simple distillation process, with the temperature being maintained at 70-78°C. Then again, the remaining solvent was evaporated using an oven at a temperature of 70-78°C.

Content Analysis of Kalamansi Orange Peel Extract

Ethanol Content Test

Testing ethanol standards to determine ethanol standards in the resulting extract. Performed using an alcohol meter. Require ethanol content is not more than 0.5% [9].

Amendment Results

The extract yield can be calculated by comparing the substance of the Kalamansi orange peel extract got with the initial sample substance. The assignment is used to get the yield of the amendment [10],

$$x = \frac{W1 \text{ (gr)}}{W2 \text{ (gr)}} \times 100\% \dots\dots\dots(1)$$

where x is the initial of amendment, W1 is the extract weight and W2 is the original sample weight.

Extract Moisture Content Test

Testing the moisture content of the extract is carried out using the oven method. 1 gram of Kalamansi orange peel extract was weighed. Then the oven extracts at a temperature of 105°C for 3 hours after which it is cooled with a desiccator for 15 minutes. Do this step until a constant weight is obtained on the extract sample. Determination [10] is used to get moisture content,

$$\text{Moisture Content (\%)} = \frac{(W1-W2)}{(W1-W0)} \times 100 \% \dots\dots(2)$$

where W0 is the empty cup weight, W1 is the cup weight + extract and W2 is the cup weight + extract (constant)

Qualitative Test of Flavonoid Compounds

Testing contain flavonoid compounds in Kalamansi orange peel extract was carried out by taking as much as 0.2 grams of extract samples into petri dish, then adding Mg powder as much as 0.1 grams and a few drops of HCl 2N. The existence of an orange color change in the sample indicates flavonoid compounds [11], [12].

Edible Film Kalamansi Orange Peel Extract

In making edible films, it dissolve the first step beef gelatin using aquadest and stirred on a hot plate with a temperature of ±60°C for 15 minutes. In the second step, add a mixture containing glycerol, sorbitol, glucose, menthol, Kalamansi orange peel extract and the remaining aquadest into a thick gelatin polymer solution and fuss until a homogeneous edible solution is formed. In the third step, add peppermint oil into the edible solution and stir until homogeneous. In the fourth stage, let the edible solution stand at a temperature of space to remove air bubbles to facilitate the edible film printing process. In the fifth stage, pour the edible solution into the cavity to be dried using an oven at room temperature for 24 hours. The last step, after the edible film is dry, it is removed from the cavity and cut to a size of 2 × 3 cm. Edible film formulation (Table 1).

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Table 1. Edible Film Formulation of Kalamansi Orange Peel Extract

Materials	Formula (% b/b)				
	F0	F1	F2	F3	F4
Kalamansi Orange Peel Extract (gr)	0	1	2	3	4
Gelatin (gr)	5	5	5	5	5
Glycerol (gr)	2	2	2	2	2
Sorbitol (gr)	2	2	2	2	2
Glucose (gr)	3	3	3	3	3
Menthol (gr)	0.2	0.2	0.2	0.2	0.2
Peppermint Oil	q.s	q.s	q.s	q.s	q.s
Aquadest Ad	100	100	100	100	100

It carried examination of additional materials contained in the formulation of edible film out according to Farmakope Indonesia 4th Ed and Handbook of Pharmaceutical Exipientas 2nd Ed.

Characteristics Evaluation of Edible Film

Determine the quality of edible film as a mouth freshener has not been determined so that the quality test of SNI (Indonesian National Standard) confectionery and the results of measuring edible film on the market are used as a comparison or control and previous studies.

Film Thickness

Thickness evaluations are carried out using a micrometer scrup. This measurement is carried out by taking one random piece of edible film on each formulation, measurements are made on the left, middle and right sides of the edible film. Thereafter, record each edible thickness of the measured film. Do three repetitions of thickness measurements to get the average value for each formulation. The requirement for the thickness of edible film is a maximum of 0.41 mm [13].

Film pH

pH evaluation is carried out to determine the resulting pH does not cause irritation in the oral cavity. This evaluation is carried out by placing pieces of edible film on a petri dish, then dissolved using an aquadest of 10 mL and allowed to stand for 5 minutes and then restrained using a pH meter. Subsequently, record each restrained pH edible film. Perform three repetitions of pH measures to obtain the average value of each formulation. The requirement for edible film pH is pH 5.5-7.9 [14].

Film Disintegration Time

Measurements of the shattering disintegration time are carried out to indicate the process of disintegration of edible film inside the mouth. This measure was carried out by placing pieces of edible film on a petri dish and then dissolved using a phosphate of pH 6.8 as much as 10 mL. Use the stopwatch tool to see the time it takes for the edible film to crumble. Perform three repetitions of the crushed time measure to obtain the average value on each formulation. As for the time requirement for the destroyed edible film, it is only 1 minutes [15].

Film Weights Uniformity

Measurement of weight uniformity is carried out to determine if there is a weight imbalance in each edible film. This measurement is made by taking three pieces of edible film at random in each formulation, then weighing each weight of edible film. Thereafter, record each edible weight of the measured film. Do three repetitions of weight measurements to get the average value for each formulation. The requirement for uniformity of weight of edible film is a maximum of 132 mg [16].

Organoleptic Tests

Organoleptic testing was carried out practicing 15 panelists to assess edible film extract of Kalamansi orange peel on five parameters, color, aroma, texture, taste and refreshing activity. The organoleptic data obtained were then processed applying the non-parametric test of the Kruskal-Wallis test and continued with the Mann-Whitney test.

III. RESULTS AND DISCUSSION

Content Analysis of Kalamansi Orange Peel Extract

Ethanol Content Test

The ethanol content test results is 0.3%. This content in the extract has met the standards set by the fatwa MUI (Majelis Ulama Indonesia), food or beverage products that contain ethanol levels of at least less than 0.5% meaning they

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can be consumed. Kalamansi orange peel extract can be added to edible film because it is safe for consumption and does not harm health [9].

Amendment Results

The yield results in the extract produces an amendment of 12.15%. The resulting amendment results have met the requirements for the optimal extract to be consumed, >10% [10]. This has been under the research conducted by [17], the use of 70% ethanol solvent causes the extract to be extracted because the water content in the solvent can activate the cells in the pattern so that the solvent can penetrate faster and the extraction process can take place more efficiently. In addition, particles of dry Kalamansi orange peel with a size of 100 mesh cause the surface state of the substance to increase more. This is under research [7], that the finer and smaller the particle size, the more pores formed in the sample will increase in the area of contact between solids and solvents in the extraction process so that the extract results can be optimal.

Extract Moisture Content Test

The results of the extract moisture content test is 9.30%. This is under the theory established by [10], that the determination of a good water content is <10%. The determination of water content aims to prevent the growth of fungi on the extract. Mushrooms can grow on extracts that exceed the standard. The determination of the water content used is a general specification for extracts because the specification for determining the moisture content for Kalamansi orange peels does not yet have a determination.

Qualitative Test of Flavonoid Compounds

The qualitative test results of flavonoid compounds show that Kalamansi orange peel extract contains flavonoid compounds. This is because of the sign of the change in the extract's color to orange [12]. The presence of flavonoid content as antibacterial activity in the extract can be interpreted that the extract has flavonoid compounds has the ability as an antibacterial compound. This is under the research conducted by [11].

Characteristics Evaluation of Edible Film

Table 2 shows the characteristics evaluation for each formulation in this research. Where F0, F1, F2, F3 and F4 is the initial for each formulation and K+ is the initial for edible film control.

Table 2. Characteristic Evaluation Edible Film of Kalamansi Orange Peel Extract

Characteristic Evaluation	Formula					
	F0	F1	F2	F3	F4	K+
Thickness (mm)	0.22 ± 0.02	0.25 ± 0.02	0.29 ± 0.02	0.31 ± 0.02	0.32 ± 0.03	0.01 ± 0
	7.25 ± 0.03	7.16 ± 0.05	7.11 ± 0.06	6.91 ± 0.04	6.72 ± 0.03	6.94 ± 0.01
Destroyed Time (second)	20 ± 2.00	24 ± 1.53	27 ± 1.53	32 ± 2.08	35 ± 1.15	11 ± 1.53
	100.53	101.33	101.94	103.60	105.29	96.51
Weight Uniformity (mg)	± 0.03	± 0.18	± 0.44	± 0.61	± 0.08	± 0.00

Film Thickness

Based on table 2, it shows that the results of evaluate thickness characteristics on experimental and control film edibles have met the thickness requirement of no more than 0.41 mm. Each formula has a variation in thickness because of the difference in the concentration of extracts in each formula. This is under the research conducted by [18]. The higher concentration of the extract, the thicker the edible film produced. In addition, although the concentration of gelatin polymer for each formulation is the same, the printing process that is carried out (solvent casting) results in several sides of the edible film having differences. The edible film control uses advanced tools and methods so that the resulting thickness does not be different on each side.

Film pH

Based on table 2, it shows that the results of the evaluation of pH characteristics in edible film have met the set pH requirements, pH 5.5-7.9. It is also not much different from edible film control so that the edible film of each formulation is safe for consumption and does not irritate the oral cavity. Edible film that has a pH that is too acidic or does not meet the requirements can facilitate the growth of bacteria. The difference pH in each formulation can be influenced by the level of

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concentration of Kalamansi orange peel extract. This is under research conducted by [5], that the higher the concentration of extracts, the lower the pH produced. Meanwhile, there are differences in Standard Deviation (SD) caused by the sensitivity of the pH meter used and the edible film storage process.

Film Disintegration Time

Based on table 2, it shows that the results of evaluate the characteristics of crushed time on experimental and control film edibles have met the requirements. The crushing time may vary depending on the formulation and printing method of edible film, the requirement of edible film crushing time is a maximum of 1 minute. The crushing time test is expected to indicate the time at which the edible film undergoes disintegration in the oral cavity. In addition, the difference in crushing time is because of the thickness of each edible film. This is under research conducted by [3], that the smaller the thickness of the edible film, the faster the destruction time. This also has an influence on the resulting Standard Deviation (SD).

Film Weights Uniformity

Based on table 2, it shows that the results of the evaluation of crushing time characteristics in experimental and control film edibles have met the weight uniformity requirement of no more than 132 mg. There is a difference in weight in the comparison edible film because of its thinner texture when compared to the experimental edible film so that it affects the weighing process. As for the Standard Deviation (SD) value, it has different results. This is because when the cutting process is done, the edible film has a different weight This is under the research conducted by [3].

Organoleptic Tests

Table 3 shows the results of organoleptic with Mann-Whitney test. This test for compare edible film on this research (F0-F4) and edible film control (K+).

Table 3. Results of organoleptic processing using the Mann-Whitney test

Assessment Parameters	K+					Asymp Sig. or p value
	F0	F1	F2	F3	F4	
Color	0.02	0.00	0.00	0.00	0.00	
Aroma	0.00	0.00	0.00	0.00	0.00	
Consistency	0.01	0.01	0.00	0.00	0.00	
Taste	0.00	0.00	0.00	0.00	0.00	
Refreshing Activity	0.00	0.00	0.00	0.00	0.00	

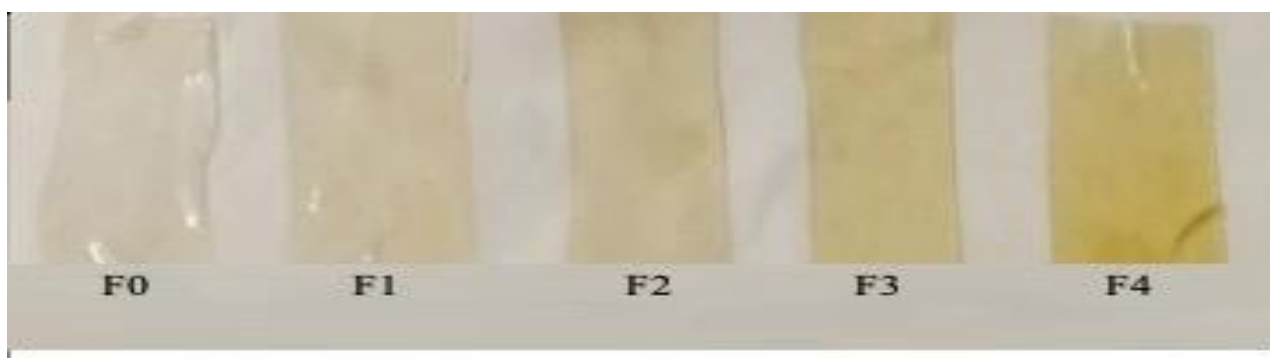


Fig 1. Edible film on any formulations

Based on table 3 shows the data of the Mann-Whitney test results on the Asymp Sig. or p value < 0.05. This means that each edible film (F0, F1, F2, F3, F4) and edible film control (K+) on the market has a significant difference. Research assumptions regarding the significant differences between edible films on the market and experimental edible films:

The difference influences the difference in color intensity in edible film add Kalamansi orange peel extract concentration in each variable. The higher the concentration of the extract, the color on each edible will also be darker brownish. Edible control film is most preferred because it has more attractive colors. So, the research assumption is the need to add coloring agents to the experimental film edible.

The high temperature influences the difference in aroma in edible film in making edible film. Although concentrate mint aroma is the same, the mint addition process carried out at a temperature of $\pm 60^{\circ}\text{C}$ can remove the aroma of menthol when it

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has formed into edible film. The research assumption is a change in the method by which it carried the addition of mint in the edible film solution out at room temperature.

The consistency of the material influences the difference in texture in experimental edible film and edible control film. The texture of the material may change because of the material storage process and the temperature in making edible film. The research assumption is that it only used a temperature of $\pm 60^{\circ}\text{C}$ for gelatin dissolution, while it carried the addition of other materials out at room temperature.

The difference in taste in edible film experiments was influenced by the difference in the concentration's addition of Kalamansi orange peel extract. The higher the addition of extract, the more bitter the edible film will taste, which will reduce the panelist's favorability level. Panelists' tongues are more sensitive and sensitive if they consume bitter foods. The research assumption is that it is necessary to increase the concentration of sweeteners or decrease the concentration of the added Kalamansi orange peel extract.

The difference in refreshing activity has something to do with the edible taste of the film. The difference lies in the time the refreshing taste will last when edible film is consumed. Both have refreshing activities, but on edible experimental movies have refreshing activities that don't last long. The research assumption is that it is necessary to increase the concentration of menthol in edible film.

V. CONCLUSION

The Kalamansi orange peel extract content analysis involves met the specifications to be formulated in edible film including ethanol content test, amendment results, water content and qualitative tests of flavonoid compounds.

The evaluation test of edible film characteristics in each formulation of F0, F1, F2, F3 and F4 has reached the corresponding requirements. As for the evaluation test of thickness characteristics of 0.22-0.32 mm, pH of 6.72-7.25, disintegration time of 11-35 seconds and uniformity weight of 100-105 mg. In organoleptic tests, the panelists preferred formulation of edible film was 0% (without Kalamansi orange peel extract). In addition, there are significant differences between edible film (0%, 1%, 2%, 3% and 4%) and edible film control (K+) in the parameters of color, aroma, texture, taste and refreshing activity.

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REFERENCES

- 1) Alamsyah, Y., Arma, U., Hidayati, R. and Sanara, F., 2021, Obat herbal rebusan daun sirih (*Piper betle* Linn) sebagai obat kumur terhadap kesehatan rongga mulut di masa pandemi covid-19, *Menara Ilmu*, 15(2), pp. 109–116.
- 2) Kurniasih, N., Junitasari, A., Nurjanah, L. and Hafsari, A. R., 2021, Potensi ekstrak n-heksana dan ekstrak etanol dari daun sirih (*Piper betle* Linn) sebagai penghilang bau mulut yang disebabkan bakteri *staphylococcus aureus* potential, *J. Farm. Unmul*, 5(3), pp. 254–260.
- 3) Dewi, W. A. and Mulya, D., 2019, Formulasi dan evaluasi sifat fisik serta uji stabilitas sediaan edible film ekstrak etanol 96% seledri (*Apium graveolens* L) sebagai penyegar mulut, *Indonesia Natural Research Pharmaceutical Journal*, 4(2), pp. 32–40.
- 4) Asridiana, A. and Thioritz, E., 2020, Efektivitas penggunaan obat kumur beralkohol dan non-alkohol terhadap penurunan indeks plak mahasiswa d-iv jurusan keperawatan gigi poltekkes makassar," *Media Kesehat. Gigi Politek. Kesehat. Makassar*, 8(2), pp. 1–8.
- 5) Tyas, S. P., Meinitasari, E., Safitri, Y. and Septianingrum, N. M. A. N., 2018, Inovation edible film extract of basil leaf (*Ocimum americanum* L) as anti halitosis, *Pros. Anu. Pharm. Conf. 3rd*, 4(2), pp. 33–39.
- 6) Nabilah, N., Pardilawati, C. Y. and Savitri, I., 2018, Formulasi obat kumur minyak atsiri kulit buah jeruk Kalamansi (*Citrus Microcarpa* Bunge), *STIK Siti Khadijah Palembang*, 10(2), p. 117..
- 7) Sari, D.I., Fitriana, M., Mulyadi, R. R. and Hidayati, L., 2017, Karakterisasi dan uji stabilitas fisik sediaan edible film ekstrak etanol kulit batang kasturi (*Mangifera Sasturi* Kosterm) berbasis gelatin, *Pros. Semin. Nas. dan Present. Ilm. Perkemb. Ter. Obat Herb. Pada Penyakit Degener.*, 1(1), pp. 8–17.
- 8) Ramadhani, N., Samudra, A. G. and Pratiwi, L. W. I., 2020, Analisis penetapan kadar flavonoid sari jeruk Kalamansi (*Citrofortunella Microcarpa*) dengan metode spektrofotometri UV-VIS," *J. Mandala Pharmacon Indones.*, 6(1), pp. 53–58.

Utilization of Kalamasi Orange Peel Extract as a Formulation Edible Film Mouth Freshening

- 9) MUI, F., 2018, Fatwa majelis ulama indonesia nomor : 10 tahun 2018 tentang produk makanan dan minuman yang mengandung alkohol/etanol.
- 10) Depkes, RI., 2000, Parameter Standar umum ekstrak tumbuhan obat.
- 11) Amiliah, A., Nurhamidah, N. and Handayani, D., 2021, Aktivitas antibakteri kulit buah jeruk Kalamansi (*Citrofortunella Microcarpa*) terhadap bakteri *staphylococcus aureus* dan *Escherichia coli*, *Alotrop*, 5(1), pp. 92–105.
- 12) Harbone, J. B., *Metode fitokimia: penuntun cara modern menganalisis tumbuhan (versi terjemahan)* oleh Kosasih Padmawinata dan Iwang Soediro. Bandung: ITB Bandung, 1996.
- 13) Dixit, R. P. and Puthli, S. P., 2009, oral strip technology: overview and future potential, *J. Control. Release*, pp. 94–97.
- 14) Panigrahi, L., Pattanaik, S. and Ghosal, S. K., 2005, design and characterization of mucoadhesive buccal patches of diclofenac sodium,” *Indian J. Pharm. Sci.*, 67(3), pp. 319–326.
- 15) Barnhart, S. D., 2013, Thin film oral dosage forms, in: *modified selease drug delivery techonolgy*, 2nd Ed. Informa Healthcare.
- 16) Nusim, S., 2010, *Active pharmaceutical ingredients: development, manufacturing, and regulation*, 2nd Ed. Informa Healthcare.
- 17) Issusilaningtyas, E., Hendra, T., Indriyani, I. and Pusita, Y. D., 2019, Formulasi dan evaluasi sediaan edible film ekstrak etanol daun kenikir (*Cosmos Caudatus Kunth.*) sebagai penyegar mulut, *J. Pharmaqueous STIKES Al-Irsyad Al-Islamiyyah Cilacap*, 1(1), pp. 65–70.
- 18) Harmely, F., Deviarny, C. and Yenni, W. S., 2014, Formulasi dan evaluasi sediaan edible film dari ekstrak daun kemangi (*Ocimum americanum l.*) sebagai penyegar mulut,” *J. Sains Farm. Klin.*, 1(1), pp. 38–47.



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Implementation Government Regulations Number 31 of 2019 Accelerates Halal Product of Indonesian Excelled on the World Stage



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ABSTRACT: Many developed countries with a majority of non-Muslim population have advanced to introduce the country as a country supporting halal products, which are good from food products, medicines, cosmetics and tourism products. Businesses in Indonesia must learn from the majority of non-Muslim countries such as Thailand, South Korea, Mexico, Japan and Spain. Demographically the Muslim population in the country is relatively minimal, but the awareness of businesses towards the needs of the global industry is very high. Lately, halal products are considered as a very potential market. The existence of Law Number 33 of 2014 concerning Halal Product Guarantee and regulated in Government Regulation Number 31 of 2019 concerning certification of halal products, is a breath of fresh air for the acceleration of halal products in Indonesia to be able to compete on the world stage. Indonesia has natural diversity that can be promoted for halal and cultural tourism with a variety of foods and tastes manifested in a variety of typical snacks products that number in the thousands. Referring to BPS data, the food and beverage industry is one of the reliable manufacturing sectors. The important role of this strategic sector can be seen from its consistent and significant contribution to Gross Domestic Product (GDP) over the past five years. This number is predicted to increase along with the awareness of business actors to register their halal legalization. This study aims to see the Indonesian people have legal awareness to use halal products to support the halal industry in Indonesia and see the awareness of businesses in Indonesia that halal products in the industrial era 4.0 is now a must. With the PP No. 31 of 2019 apparently not all business operators in Indonesia have registered their products to have halal label certification.

KEYWORDS: halal products, business actors, legal awareness, acceleration

INTRODUCTION

Islam today is the religion with the second largest population in the world, after Christianity. Based on a report by the Pew Research Center Forum on Religion and Public Life, the world's Muslim population is expected to increase by around 2030. On the other hand, Surkes said that between 2010 and 2025 the Muslim population had a projected growth rate of around 73 percent.¹

Its growth will be faster than the average global population growth of 37 percent. As the world's Muslim population increases, the demand for halal commodities will continue to increase. This condition is strengthened by the increasing awareness of Muslims to prioritize consumption of halal products. Besides that, the trend of consuming halal products among non-Muslims also continues to increase due to ethical and health reasons.

Facts in the field show that, Indonesia is the 4th largest halal food importer country in the world. Until 2018, Indonesia is still recorded as the largest consumer or halal product / service market and has not been a major player in the world Islamic economy.² In fact, when considering the abundance of existing natural resources coupled with the majority of the Muslim population, Indonesia should be a leader in the trade of Asian halal products and be able to penetrate the world market. The strengthening of the halal chain (halal value chain) continues to be intensified as an acceleration of Indonesia's vision to become a Global Islamic Economy with a focus on sectors or clusters that are considered potential and highly competitive.

¹ Indonesian Sharia Economics Master Plan 2019-2024, Ministry of National Development Planning, 2018, p. 52.

² *Ibid.*, p. 54.

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The issue of the halal status of a product and service will always be attached to Muslim consumers. For Muslim consumers, halal food is a product that has been through the halal certification process. This is marked by the inclusion of halal symbols on the packaging. At present, the halal symbol has become the world barometer standard that determines product quality. For Muslims, the halal symbol indicates that the product has fulfilled the requirements stipulated by sharia law (*halalan thayyiban*) so that it is fit for consumption. As for non-Muslims, the halal logo represents a symbol of cleanliness, quality, purity, and safety.³

The issuance of Law Number 33 Year 2014 concerning Halal Product Guarantee (or abbreviated UUJPH) actually reinforces the urgency of halal issues in the production chain from business actors to the hands of consumers and consumed by consumers, where there are also roles of intermediaries such as distributors, subdistributors, wholesaler and retailer before reaching the end consumer.⁴

The definition of halal product is regulated in Article 1 point (2) UUJPH, namely: "Halal Products are products that have been declared halal in accordance with Islamic law". Referring to the notion that food, non-food, and services are basic needs for humans. Its existence is very crucial in everyday life. For Muslim consumers, consuming food and beverage products and using halal and guaranteed services is not negotiable, except in an emergency.⁵

Islam provides guidance to people to only consume halal and guaranteed, both from food products, drinks, food and health supplements, vaccines, medicines, cosmetics, and others. Objection, is a fundamental for Muslim consumers. For Muslims the legal basis is clear. In Al-Qur'an Q.S al-Maidah verse: 3, explicitly and categorically mentioned types of food that is halal and haram. Such as the prohibition on eating carcasses (other than fish and grasshoppers), blood, pork, meat of animals slaughtered by mentioning names other than Allah, animals slaughtered for idols, animal flesh choked, beaten, dropped, gore / pounced on wild animals, except for being able to slaughter by name God.⁶

Article 4 letter (a) of Law Number 8 of 1999 concerning Consumer Protection (hereinafter referred to as UUPK) states that "consumer rights" are the right to / comfort, security, and safety in consuming goods and or services ". Then it is also emphasized in Article 8 letter h, that business actors are prohibited from producing and / or trading goods and / or services that: "do not follow the provisions of halal production, as stated in the" halal "statement stated on the label. Seeing the provisions of Article 2, all consumers in Indonesia have the right to obtain goods that are safe, secure and lawful for consumption. The definition of safe for consumers is that the goods also do not conflict with the rules of religion, in the sense of halal. The regulation is supported by other laws and regulations, namely UUJPH, Health Act, Law No.7 of 1996 concerning Food and Government of the Republic of Indonesia Regulation No. 69 of 1999 concerning Halal Labels and Advertisements, and the latest is Government Regulation Number 31 of 2019 concerning Halal Product Guarantees which was passed by the President of Indonesia Mr. Joko Widodo on May 17, 2019, and the PP is valid from October 17, 2019.⁷

Since the birth of PP Number 31 Year 2019, certification of halal products is not only permissible (*mogen*) but has become an obligation. This means building public awareness, especially producers, that halal certification is urgent and very urgent. The issue of halal-haram cannot be imposed on standards of trust without legality. This is a problem as well as the challenge of legal development is an obligation, especially in the current 4.0 industrial revolution. One of the legal developments is to increase public legal awareness, especially business actors whose products are circulating in Indonesia in order to answer the success or failure of the 2019-2024 Indonesian Sharia Economy master plan.

Departing from this phenomenon, this paper is going to explore how to build a law-conscious society in the halal industry era and how to maximize halal certification as an acceleration of Indonesian products so that they can succeed on the world stage. This study uses a normative juridical approach, by examining from primary data sources namely Law Number 33 of 2014 concerning Halal Product Guarantee and Government Regulation Number 31 of 2019 concerning Halal Product Guarantee using secondary data, namely from books, other laws and regulations, journals, articles and academic texts. And an explorative descriptive analysis of the problem being studied, in the study is to look at the phenomena in the from of the use of halal product by the public and the awareness of businesses to have halal certificates of product and then analyzed based on theory and legislation.

³ *Ibid.*, p. 51.

⁴ May Lim Charity, "Halal Products Guarantee in Indonesia, (Journal of Indonesian Legislations Vol. 14 No. 01, March 2017), p. 10.

⁵ <http://repository.unpas.ac.id/31767/1/BAB%203.pdf>, p. 1.

⁶ *Ibid.*

⁷ Certified or Excluded by Imported Halal Product, www.hukumonline.com, accessed on 15 September 2019, at 22.24 WIB.

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This study aims to see the extent of Indonesian people's legal awareness of the importance of the use of halal products in Indonesia and the implementation of the Halal Product Guarantee Law and PP No. 31 of 2019 concerning Certification of Halal Products for halal products circulating in the community, as one of the acceleration of Indonesian halal products to be able to succeed in the world stage.

THE CONCEPT OF LAW AWARENESS

Understanding legal awareness, then regarding the word or understanding awareness, in the dictionary are listed no less than five meanings, namely quoting Webster's opinion in the book Soerjono Soekanto:⁸

1. *Awareness esp. Of something within oneself; also: the state or fact of being conscious of an external object, state or fact.*
2. *The state of being characterized by sensation, emotion, volition, and thought; mind.*
3. *The totality of conscious states of an individual.*
4. *The normal state of conscious life.*
5. *The upper level of mental life as contrasted with unconscious processes.*

So awareness actually refers to mental interdependence and mental interpenetration, each of which is oriented to the "I" of humans and to "their rooms."⁹ Legal terms also need to be given understanding. This is not a definition, because as Van Apeldoorn said by mentioning Kant, then Apeldoorn in the book Soerjono Soekanto:¹⁰ "*Wat Kant... schreef: 'Noch suchen die Juristen eine Definition zu ihrem Begriffe vom Recht', geldt nog altijd... Dit is althans ten dele te verklaren uit de veelzijdigheid... de grootsheid van het recht: het heeft zovele kanten..., dat men het niet op bevredigende wijze kan samenvatten onder een formule.*"

The meaning of law can be aimed at the ways to realize the law, and also on the understanding given by the community in this case will be endeavored to explain the understanding given by the public about the law are:¹¹

1. Law as science;
2. Law as a method;
3. Law as a legal system;
4. Law as a legal officer;
5. Law as a provision from the authorities;
6. Law as a government process;
7. Law as patterns of behavior;
8. Law as a tangle of values;

Now the problem arises, is legal awareness a combination of the two notions described above? In jurisprudence, there are sometimes differences between legal awareness and legal feelings as stated by van Schmid, as follows: "*Van rechtsgevoel dient men te preken bij spontaan, onmiddelijk als waarheid vastgestelde rechtswaardering, terwijl bij het rechtsbewustzijn men met waarderingen te maken heeft, die eerst middelijk, door nadenken, redeneren en argumentatie aannemelijk gemaakt worden.*"¹²

Legal feelings are defined as legal judgments arising out of the community immediately. More legal awareness is the formulation of the legal community regarding the assessment, which has been done through scientific interpretations because: "*het onmiddelijk rechtsgevoel verhoudt zich tot het weloverwogen rechtsbewustzijn, als in het dagelijks leven het subjectieve gevoel van de waarheid tal het zet tot het weloverwogen rechtsbewustzijn, als in het dagelijks leven het subjectieve gevoel van de waarheid talet. en beweringen zich verhoudt tot de weloverwogen wetenschappelijke overtuiging.*"¹³

Before expressing his opinion on legal awareness, Paul Scholten first conducted a review of the conception of legal awareness proposed by Krabbe, as follows:¹⁴ "*Met den term rechtsbewustzijn meent men and niet het rechtsoordeel over eening concreet geval, doch het in ieder mens levend bewustzijn van wat recht is of behoort te zijn, een bepaalde categorie van ons geestesleven, waardoor wij met onmiddelijke evidentie los van positieve instellingen scheiding maken tusschen recht en onrecht, gelijk we dat doen en onwaar, goed en kwaad, schoon lejj, schoon lejj.*"

⁸ Soerjono Soekanto, "Legal Awareness and Legal Compliance", (Jakarta: Rajawali Press, 1982), p. 150.

⁹ *Ibid.*, p. 150 – 151.

¹⁰ *Ibid.*, p. 151.

¹¹ *Ibid.*

¹² *Ibid.*, p. 152.

¹³ *Ibid.*

¹⁴ *Ibid.*

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Then Scholten also quoted Kranenburg's opinion, as: "*Elk lid der rechtsgemeenschap is ten aanzien der verdeling van de voorwaarden van het lust en onleli ameli en gelijk en gelijkwaardig, voorzoover hij niet zelve de voorwaarden van de voorwaarden van het lust en onleli gelijk en gelijkwaardig, voorzoover hij niet zelve de voorwaarden van de voorwaarden van het lust en onleli ameli en gelijkwaardig, voorzoover hij niet zelve de voorwaarden, voorwaarden van het lust en onleli ameli onlust als waarover elk de voorwaarden heeft gecreeerd comment aan hem toe. Dit is de laatste wet van het rechtsbewustzijn; naar dezen maatstaf gescheed de waardering van belangen; daarnaar wordt aan ieder het zijne afgewegen; deze afweging en toebedeeling is de eingenlijke functie van het recht.*"

On the basis of the descriptions above, Scholten states that: "*De term rechtsbewustzijn is dubbelzinnig. Hij duidt ten eerste categorie van het individueele geestesleven aan, do dient tegelijk om het gemeenschappelijke in oordelen in een bepaalden kring aan te wijzen. . . Wat we "rechtsbewustzijn" noemen is in dit verbandt niet anders and een min of meer vage woorstelling omtrent wat recht behoort te zijn ...*".¹⁵ Here, too, it is clearly seen, that Scholten emphasizes the values of society about what functions should be carried out by the uttrent. law in society. In line with this opinion it can be said that the problem here is back to the basic problem rather than the validity of the applicable law, which ultimately must be returned to the values of society (in the sense of its citizens).

So legal awareness is the awareness or values contained in human beings about existing laws or expected laws exist. So, what is emphasized are values about the functioning of the law and not a legal assessment of concrete events in the community concerned.¹⁶

The indicators of legal awareness are concrete rather than a system of values that prevails in society. A situation that is aspired to is the compatibility of the law with the system of values.¹⁷ The consequence is that changes in the system of values must be followed by changes in the law or on the other side the law must be used as a means to make changes to the value system this value.¹⁸ Thus it is evident that the problem of legal awareness is actually a matter of values.¹⁹ So legal awareness is abstract conceptions in human beings, about the difficulty between order and the desired tranquility or as appropriate. The indicators of the problem of legal awareness are Kutschinsky in Soerjono Soekanto's book:²⁰

1. Knowledge of legal regulations (law awareness).
2. Knowledge of the contents of legal regulations (law acquaintance)
3. Attitudes towards legal regulations (legal attitude)
4. Patterns of legal behavior (legal behavior)

Each of the aforementioned indicators refers to a certain level of legal awareness starting from the lowest to the highest.²¹ While Zainuddin Ali concluded that the problem of legal awareness of citizens actually involves the factors whether certain legal provisions are known, understood, obeyed, and respected? If the community members only know that there is a legal provision, then the level of legal awareness is lower than those who understand it, and so on. That is what is called legal consciousness or knowledge and opinion about law.²² Matters relating to legal awareness are as follows:²³

1. Legal knowledge

If a statute has been promulgated and issued according to a legal and official procedure, then legally it will apply. Then the assumption arises that every community member is considered to know the existence of the law.

2. Understanding the law

If only legal knowledge is owned by the community, it is not yet sufficient, an understanding of the applicable law is still needed. Through understanding the law, the community is expected to understand the purpose of the legislation and its benefits for those parties whose lives are governed by the laws and regulations in question.

3. Legal compliance

A community member obeys the law for various reasons. The causes referred to, can be exemplified as follows: a. Fear of negative sanctions, if violating the law is violated; b. To maintain good relations with the authorities; c. To maintain good relations with

¹⁵ *Ibid.*

¹⁶ *Ibid.*, p. 153.

¹⁷ *Ibid.*

¹⁸ *Ibid.*, p. 152.

¹⁹ *Ibid.*, p. 159.

²⁰ *Ibid.*

²¹ *Ibid.*

²² Zainuddin Ali, "Legal Sociology", (Bandung: Sinar Grafika, 2007), p. 65.

²³ *Ibid.*, p. 67-70.

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colleagues; d. Because the law is in accordance with the values adopted; and e. Its importance is guaranteed Theoretically, the fourth factor is the best thing. That is caused by the first, second, and third factors, the application of the law is always in reality.

4. Hope for the law

A legal norm will be respected by members of the community if he already knows, understands, and obeys it. That is, he really can feel that the law produces order and peace in him. The law is not only related to the outward aspects of humans, but also from the inner side.

5. Increasing legal awareness

Increasing legal awareness should be done through regular legal information and counseling on the basis of sound planning. The main purpose of information and legal counseling is for citizens to understand certain laws, according to the legal problems being faced at one time. Legal information and counseling is the duty of the legal community in general, and in particular those who may be in direct contact with community members, namely legal officers.

CONCEPT OF HALAL PRODUCT GUARANTEE

Halal product is regulated in Law Number 33 of 2014 concerning Halal Product Guarantee (UUJPH) in Article 1 point (2): "Halal products are products that have been declared halal in accordance with Islamic law". Referring to the notion that food, non-food, and services are basic needs for humans. Its existence is very crucial in everyday life. For Muslim consumers, consuming food and beverage products and using halal and guaranteed services is non-negotiable, except in emergencies.²⁴

Islam provides guidance to people to only consume halal and guaranteed, both from food products, beverages, food supplements, vaccines, medicines, cosmetics, and others. Objection, is a fundamental for Muslim consumers. For Muslims the legal basis is clear. In Al-Qur'an Q.S al-Maidah verse: 3, explicitly and categorically mentioned types of food that is halal and haram. Such as the prohibition on eating carcasses (other than fish and grasshoppers), blood, pork, meat of animals slaughtered by mentioning names other than Allah, animals slaughtered for idols, animal flesh choked, beaten, dropped, gore / pounced on wild animals, except for being able to slaughter by name Allah.²⁵

For Muslim consumers, halal guarantee of a product / service is a very important thing of its existence. Because consuming halal food is an absolute religious command due to the Muslims. Islam does not only focus on the material aspects alone, and also not only focuses on the aspects of body development alone but Islam also pay attention to something that affects the morals, soul (personality) and behavior. Consuming halal products guarantees that the product is also safe, good and guaranteed quality. Although halal products are legal in Islam, the results of their products can also provide benefits and have a healthy guarantee, so they can also be used by non-Muslim consumers too.²⁶

Article 4 letter (a) of the UUPK states that "consumer rights" are rights to / comfort, security and safety in consuming goods and or services ". Seeing this Article, all consumers in Indonesia, including Muslim consumers, constitute the majority of consumers in Indonesia, entitled to obtain goods that are safe, secure, and lawful for consumption. The definition of safe for consumers is that the goods also do not conflict with the rules of religion, in the sense of halal. The regulation is supported by other laws and regulations, namely UUJPH, Government Regulation of the Republic of Indonesia No. 69 of 1999 concerning Halal Labels and Advertisements, and the latest is Government Regulation Number 31 of 2019 concerning Regulations of Act Number 33 of 2014 concerning Halal Product Guarantees.

In the Law on Halal Product Guarantee, it is emphasized that all business actors, both private and public, both individuals and corporations from those not legal entities to those with legal entities, must have a halal product guarantee certificate. This certificate will later be issued by the Halal Product Guarantee Agency (BPJPH). Indonesian Ulema Council (MUI) is an institution that provides an assessment of products to be marketed and consumed by the public, whether lawful or not, and the issuing later is BPJPH. This is affirmed in Article 1 point (10) of the UUJPH which reads: "Halal Certificate is a recognition of the halal status of a Product issued by BPJPH based on a written halal fatwa issued by the MUI." And the implementation regulation will be based on PP Number 31 of 2019.

The problem that is still happening today, is that not all consumers, especially Islamic consumers have enough knowledge to know whether the food and goods they consume will actually have halal certification or not. Article 4 letter (c) of the UUPK also states that "consumers are entitled to true, clear, honest information about the conditions and guarantees of goods or services". This article provides an understanding that the information provided by business actors is true and tested. A product and / or

²⁴ <http://repository.unpas.ac.id/31767/1/BAB%203.pdf>, p. 1.

²⁵ *Ibid.*

²⁶ Ahmad Syauqi al Fanjari, "Health Values in Islamic Sharia", (Jakarta: Earth Literacy, 1996), p. 44.

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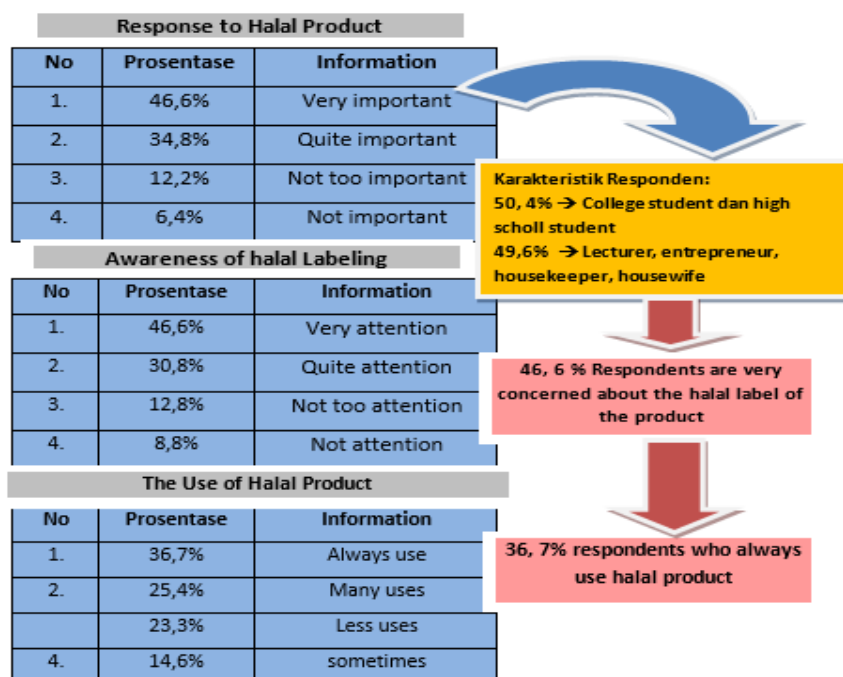
service that has been tested for halal status, it is clear that the product's condition and guarantee are safe for consumption. Therefore, based on PP No. 31 of 2019 concerning Halal Product Guarantee, all business actors whose products are circulating in Indonesia are obliged to guarantee their halalness by first submitting an inspection to the authorized official and having declared halal. On the one hand there is halal certification for Muslim consumers, meaning that in accordance with Islamic law, while for non-Muslim consumers halal certification represents a symbol of cleanliness, quality, guaranteed in terms of health, purity and safety.²⁷

Before the PP No. 31 of 2019 regarding Halal Product Guarantee, had to go through several institutions for the processing of halal product certification, namely the Institute for Food, Medicine and Cosmetics Study of the Indonesian Ulema Council (LPPOM MUI) as the institution that issued halal certificates, and the Supervisory Agency Drug and Food (BPOM) which grants permission to install halal labels and the Ministry of Religion in charge of disseminating and promoting halal food. So it is hoped that if this PP is truly treated there will be a simplification of the management of halal product certification, so that it can be faster and more efficient. The goal is that all small, medium and large business entrepreneurs want to take care of the products they produce to get halal certification from the government.

EFFORTS TO BUILD COMMUNITY AWARENESS IN THE HALAL INDUSTRY ERA

The halal industry is experiencing rapid development in several sectors including: halal food, finance, travel, fashion, cosmetics and medicine, media and entertainment, as well as other sectors such as healthcare and education. The word "industry" is defined as the activity of processing or processing goods using facilities and equipment, such as machinery.²⁸ Whereas in the Indonesian context, the word "halal" means to be permitted, permitted by Islamic sharia, not haram or legitimate. From these two meanings, the halal industry is the activity of processing goods using the facilities and equipment permitted by Islamic law.

For Muslim consumers, halal guarantee of a product / service is a very important thing of its existence. Because consuming halal food is an absolute religious command for Muslims. Islam does not only focus on the material aspects alone, and also not only focuses on the aspects of body development alone but Islam also pay attention to something that affects the morals, soul (personality) and behavior. Consuming halal products guarantees that the product is also safe, good and guaranteed quality.²⁹ Although halal products are legal in Islam, the results of the products can also provide benefits and have a healthy guarantee, so they can also be used by non-Muslim consumers too. Based on the results of research conducted from 5 to 20 December 2019 in Madiun, Ponorogo, Magetan, Ngawi and Jember areas with a total of 120 correspondents, indicating that the level of legal awareness of Indonesian people to use halal products is still minimal. This can be seen from the following chart



²⁷ May Lim Charty, "Guaranteed Halal Product In Indonesia...", p. 100.

²⁸ Waharini Faqiatul Mariya dan Annisa Hakim Purwantini, "Models of Development of The Halal Food Industry", (Muqtasid Journal No. 9, Vol. 1, June 2018), p. 2.

²⁹ Ahmad Syauqi al Fanjari, "Health Values in Islamic Sharia"... , p. 44.

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Legal awareness is the awareness or values contained in human beings about the existing law or the expected law there. So, what is emphasized are the values about the function of law and not a legal assessment of concrete events in the community concerned.³⁰ Seeing the responses of some of the correspondents in the above table, it can be seen that awareness Indonesian community law related to the use of halal products, is still low.

In growing public legal awareness, there are three indicators, namely knowledge, understanding and obedience to the law. When seen from the indications of Indonesian people's legal awareness about the use of halal products:

1. Related to the knowledge and understanding of community law on halal products, it can be seen from the table above that the community's legal knowledge of halal products is still low. The effort that can be done is to educate the public about the importance of consumer legal protection, the importance of using halal products, the benefits and the guaranteed products used. Education can be done by the Indonesian Consumers Institute, law lecturers through legal counseling conducted during KKN or KPM, law students, so they do not have to wait from the Government or the Central Government.
2. With respect to community legal compliance with halal products, from providing legal knowledge and understanding of the importance of halal products, it is hoped that the Indonesian people will be able to obey the law. Obedience to the law, by some people in Indonesia is always connoted as carrying out orders, because of sanctions. Halal Product Guarantee and PP No. 31 of 2019 concerning Halal Product Certification, only regulates and imposes sanctions on business actors, but related to non-compliance or public disobedience to use halal products, the rules only exist in the Consumer Protection Act, while the sanctions of the three rules do not exist. That a rule of law must be balanced, both business people and consumers (the public) so that, if the business actor is already obedient, then the consumer or the community must also obey. Not because the rules made contain sanctions or not.
3. Hoping to the law, the community always demands that businesses in producing their products must comply with existing regulations, so that the products produced are halal products, guaranteed quality and safety. However, the community itself is lacking in legal compliance. People always hope that good law is a law that can provide as much prosperity as possible and minimize misery, so that in order for the law to provide this goal, the law must be made perfect. No matter how good the law is made, but legal awareness is weak, then no matter how well the regulation is made, it still cannot run optimally.

APPLICATION OF HALAL CERTIFICATION AS ACCELERATION OF INDONESIAN PRODUCTS TO BE SUCCESSFUL IN THE WORLD STAGE

In Article 8 paragraph (1) letter h of the Capital Market Law it is stated that business actors are prohibited from producing and / or trading goods and / or services that do not comply with the provisions of halal production, as stated in the "halal" statement stated on the label. However, the Consumer Protection Act does not regulate whether goods traded must bear a halal label or not. So that the regulation of the sound of Article 8 paragraph (1) letter h of the UUPK is further regulated in Law Number 33 of 2014 concerning Halal Product Guarantee.

The government issued UUJPH as a form of Consumer Protection, especially Muslim consumers.³¹ In accordance with Article 3 letter a The enactment of this Law aims to provide comfort, security, safety, and certainty of Halal Products for the public in consuming and using products.³² Whereas for business actors, the presence of UUJPH provide guidance on how to process, process, produce, and market products to the consumer community, as well as how to make halal product information to consumers. In addition, producers also reap the benefits of this law, namely the existence of legal certainty for all goods produced, so that UUJPH will have a positive impact on the business world.

In order to accelerate the acceleration of the halal industry in the country, the Government finally issued Government Regulation Number 31 of 2019 concerning Regulation on Implementation of Law Number 33 of 2014. The presence of this Government Regulation has strengthened Indonesia's position as a producer of halal products. Bearing in mind that starting on October 17, 2019, all products in the form of food, medicines and other consumer goods must be halal-certified.³³ This is in accordance with Article 2 (1) which reads "Products that enter, circulate and trade within the territory of Indonesia must be halal certified ". This means that as of that date all products in circulation are subject to legal legality (halal certificates). Law is an inseparable part of a person's life in society. The law is a human juridical will. Law works based on the system, and the national

³⁰ Soerjono Soekanto, "Legal Awareness an Legal Compliance" ..., p. 152.

³¹ Look at article 3 letter (a) of Law Number 33 Year 2014 concerning Halal Product Guarantee : "Provide comford, security, safety, and certainty of the availabilily of Halal Products for people in consumer and using product."

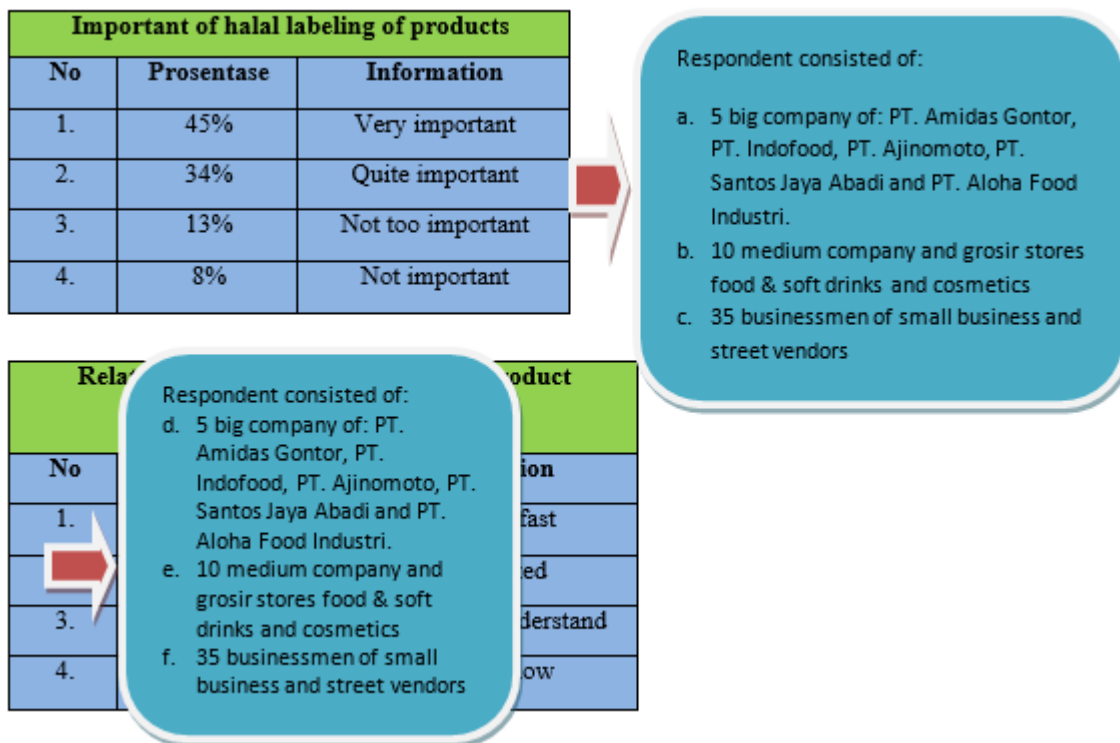
³² "Halal Product Guarantee Act Provides Legal Certainly To Consumers", www.hukumonline.com, is accessed at September 13 2019, 13.15 WIB.

³³ Certified or Excluded by Imported Halal Products", www.hukumonline.com, is accessed at September 15 2019, 22.24 WIB.

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legal system that is built does not only concern the legal substance, but also the legal structure and legal culture. To uphold the supremacy of the law as intended in the constitutional, the three systems must be developed in a stimulant and integrated manner.³⁴

With the Government Regulation it is expected that many business actors will even legalize halal products that will be offered to the public. However, based on research conducted by researchers on several business actors, both producers and sellers, both large, medium and small scale, in East Java, the data obtained are:



Problems with halal-standard products should have become an integral part of global trade and economic practices that demand international standards and quality to gain the trust of consumers across countries. So that the flow of goods, services, capital, knowledge between countries will become easier.³⁵

Food and other products consumed by halal and safe consumers are the basic rights of every human being. This is not only related to religious beliefs, but there are well-maintained dimensions of health, economy and security. So with a majority Muslim population, without being asked, the state should be present to protect its citizens in the fulfillment of their citizens' fundamental rights, namely by issuing Law No. 33 of 2014 concerning Guaranteed Halal Products and PP No. 31 of 2019.³⁶ In line with that business actors (producers) should also provide protection to consumers, which is regulated in Law No. 8 of 1999 concerning Consumer Protection. Therefore, the state is demanded to be more active in regulating the economic system that is outlined in the strategy carried out by the government or the state in carrying out trade or business instruments, among them through regulation.³⁷

In the current era of globalization, and the launching of industry 4.0 in the implementation of MDGs (Millennium Development Goals), halal lifestyle has indeed become a trend in world countries. This phenomenon is not only adopted by countries with a majority Muslim population but also in countries with a majority non-Muslim population. In addition, awareness of the fulfillment of halal food is increasing in the global arena along with the stretching of global halal tourism which is not merely limited to the tourist destination sector which is linked to Islamic sites (religious) but involves the fulfillment of tourism needs themselves. Because the world community has realized that halal food has been guaranteed in terms of health. This has been implemented by multinational corporations with halal-based food products and services, such as Japan Airlines, Singapore

³⁴ KN. Sofyan Hasan, "Legal Certainty and Certification Halal Labeling of Food Products", Journal of Legal Dynamics, Vol. 14 No. 2 (2014), p. 232.

³⁵ Violetta Sumatupang, "Based Tourism Law Traditional Cultural Expressions", (Bandung: Alumni, 2015), p. 155.

³⁶ Ali Yafie et al, "Free Trade Fiqh" (Jakarta: Teraju, 2004), p. 77.

³⁷ Asroun Ni'am Sholeh, "Halal Becomes a Global Trend", Article GATRA, July 29, 2015.

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AirLines, Qantas, Chatay Pacific (Hong Kong), America Airlines provides a halal menu (moslem meal). This phenomenon also spreads to America, Australia, Japan, China, India, and Latin American countries.³⁸

Even the State of Japan, has very serious attention to the development of halal trends and is now well developed. One of the indications is the holding of the Japan Halal Expo since 2015 until now, which is always crowded, so that it has attracted the attention and interest of various parties. It began mid-2015, with the holding of the Japan Halal Expo, a large-scale exhibition containing halal products made in Japan. Noted, to date there have been more than 400 restaurants in Japan that have provided halal food, 54 of which are specialty foods for the country.⁴² Data from the State of the Global Islamic Economy 2014-2017 states that indicators of the halal business trend are seen in five industry sectors continues to show progress even until 2019 today. These include Islamic financial services, halal food, Muslim fashion, halal media and recreation, as well as halal pharmaceuticals and cosmetics. Unfortunately, Indonesia ranks tenth among the countries implementing the Islamic economy. The top ten countries are Malaysia, United Arab Emirates, Bahrain, Oman, Saudi Arabia, Qatar, Kuwait, Jordan, Pakistan and Indonesia.³⁹

Provision of products that are very prospective business, because with the label (certification) halal can invite loyal customers who are not only interested by Muslims but also non-Muslim communities. Because with the halal certification of the products offered to consumers, people will feel safe in using them. In contrast to business actors who do not provide halal information marketing their products in countries such as Indonesia with a Muslim majority population, their products are less desirable, and consequently they will harm the business actors themselves. By requiring halal certification for business actors whose products are circulating in Indonesia, based on PP No. 31 of 2019 is not only aimed at giving peace of mind to Muslims and society in particular but also production calm for business people. Therefore, in the current era of economic globalization and free markets, halal food certification and labeling is increasingly needed.

In Indonesia, the issue of halal services and goods products has a very important meaning which is intended to protect the Muslim community, especially in order to avoid consuming food that is not halal (haram). Sanctions for business actors violating the provisions in Article 8 of the UUPK pursuant to Article 62 paragraph (1) of the UUPK are punishable by a maximum imprisonment of 5 (five) years or a maximum fine of Rp 2,000,000,000.00 (two billion rupiah). From the sound of the regulation in the UUPK above, it is clear that if the seller or business actor does not include a halal label, the sanction may be imposed. However, the Consumer Protection Act does not regulate whether goods traded must bear a halal label or not. So that the regulation of the sound of Article 8 paragraph (1) letter h of the UUPK is further regulated in Law Number 33 of 2014 concerning Halal Product Guarantee.

Halal certificate is very important for Muslim and non-Muslim consumers because it involves religious principles and consumer rights, as well as providing security and security in the health sector. However, the birth of UUJPH has not shown significant results from business actors to take care of the results of their products in order to get halal certification. In Article 2 paragraph (1) UUJPH states that: "Products that enter, circulate and trade within the territory of Indonesia must be halal certified". This means that with the passing of PP No. 31 of 2019, all products both services and goods circulating in Indonesia that will be consumed or enjoyed by consumers in Indonesia are subject to legality must be halal-certified.

Consumers who are increasingly critical really need certainty about the products they consume and the service products they use both in terms of legality and good and halal quality according to Article 8 paragraph (1) letter h of the Capital Market Law. In UUPK Article 2 concerning the principle of consumer protection which reads "Consumer protection is based on benefits, justice, balance, security and consumer safety and legal certainty". The article clearly states that the consumer has the right to obtain legal protection. Article 4 regulates consumer rights and Article 5 specifically regulates consumer obligations.

Based on the two articles above (article 4 and article 5), it is clear that consumers have the right to get the truth, clear, honest and regarding the conditions and guarantees of goods and / or services and are obliged to read and follow information instructions and procedures for the use or utilization of goods and / or services, for the sake of security and safety. So the obligation of entrepreneurs who make products must provide true, clear and honest information about the conditions and guarantees of goods or services and provide user explanations, repairs and maintenance (regulated in Article 7 of the UUPK). This is where the role of government must be able to enforce the Consumer Protection Act (UUPK) by means of socializing to consumers in using and consuming a product.

At the global level, LPPOM MUI actively cooperates with international halal certification bodies. LPPOM MUI initiated the World Halal Food Council (WHFC). The WHFC Congress in 2004 strengthened steps by issuing agreements between halal certification bodies to create the same halal inspection standards for all member countries of the World Halal Council. MUI halal

³⁸ Japan Halal Expo 2015, in Halal Journal No. 133/ May – June Th. XVII 2015, p. 18.

³⁹ Waharini Faqiatul Mariya dan Annisa Hakim Purwantini, "Models of Development of The Halal...", p. 2-3.

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standard and halal auditor LPPOM MUI has become a guideline in Indonesia and has become a reference for 43 overseas halal certification bodies in 23 countries.⁴⁰

Article 29 of the UUPK states that the state is the party most responsible and responsible for fostering the implementation of consumer protection, the implementation of which is submitted to the relevant Minister, in this case the Minister of Industry and Trade. In full, Article 29 states:

- (1) The state is responsible for fostering the implementation of consumer protection that guarantees the acquisition of consumer and business actors' rights as well as the implementation of consumer and business actor obligations.
- (2) Guidance by the state for the implementation of consumer protection as referred to in paragraph (1) shall be carried out by the Minister and / or relevant technical ministers.
- (3) The Minister as referred to in paragraph (2) coordinates the implementation of consumer protection.⁴¹

Fostering the implementation of consumer protection as referred to in paragraph (2) includes efforts to:

1. the creation of a business climate and the growth of a healthy relationship between business people and consumers;
2. the development of non-governmental consumer protection institutions;
3. increasing the quality of human resources and increasing research and development activities in the field of consumer protection;
4. Further provisions regarding the development of the implementation of consumer protection are regulated by Government Regulation.⁴²

In addition to coaching, an important role of the state is supervision of the implementation of consumer protection. Article 30 of the UUPK states that the state, together with the community and non-governmental consumer protection institutions, are the parties that have been given the task of supervising.

State supervision is carried out on the implementation of consumer protection and the application of the provisions of the legislation. Supervision is carried out by the public and non-governmental consumer protection institutions, in addition to the implementation of consumer protection and the application of the provisions of the legislation, also carried out on goods and or services circulating in the market. The form of supervision is carried out by means of research, testing and or surveying. Supervised aspects include loading information about the risks of using goods, installing and completing information on labels / packaging including halal labels, advertisements and others, as required by legislation and trade practices. The results of supervision conducted by the community and non-governmental consumer protection institutions can be disseminated to the public and can be conveyed to the Minister and technical ministers.⁴³

In the provisions of Article 30 above it is also mentioned, if in the supervision found irregularities in the legislation, the state must take administrative action and or legal action, as sanctions are threatened by the UUPK. This decisive action will increase consumer confidence in the consumer protection legal system established by the government, increase public participation in supervision and consumer institutions, as well as encourage businesses to produce quality and create a better business climate and also want to include a halal label on the products they produce.

Solutions so that businesses want to take care of halal certification which aims to provide adequate protection to the interests of consumers, then with the issuance of Government Regulation Number 31 of 2019 concerning Halal Product Guarantee is an appropriate alternative from the Government. Where one of the reasons is the requirement of business actors whose products are circulating in Indonesia must have halal certification from BPJPH Indonesia. So it is not only Indonesian businesses but also business people from abroad whose products are sold or circulated in Indonesia, both food products, medicines, vaccines and so on.

CLOSING

Legal awareness of halal products is not only demanded by business actors both business actors, small, medium and large business actors only, but also the public as consumers, both domestic and international communities visiting Indonesia, to also use Indonesian halal products. Because the use of halal products in UUPK and PP is no longer a recommendation but it is our shared obligation. So that it is expected that in the current technological era 4.0, halal products in Indonesia can at least succeed in their

⁴⁰ Japan Halal Expo 2015, in Halal Journal No. 133..., p. 18.

⁴¹ Martha Eri Safira, "Economic Law in Indonesia", (Ponorogo: Nata Karya, Cet. 4, 2019), p. 52.

⁴² Muhammad Djumhana, "Consumer Protection Law in Indonesia", (Bandung: Citra Aditya Bakti, 2003), p. 12.

⁴³ Sofyan Hasan, "Halal Certification in Positive Law, Regulation and Implementation in Indonesia, (Yogyakarta: Aswaja Presindo, 2014), p. 351.

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own country, and later they can also become superior halal products in Southeast Asia and even in Pasiffic Asian Countries, Europe, the Middle East, America, Africa and Australia. So it is from us that Indonesian halal products are cultivated and we love them, because the advancement of Indonesian halal products is ours.

Law is an inseparable part of a person's life in society. The law is a human juridical will. The law works based on the Indonesian legal system and system which is built and developed not only in legal substance, but also in the legal structure and legal culture. Related to this, the existence of legal substance to protect business actors and consumers from the UUPK, UUJPH and PP regarding the certification of halal products, already contains a very concrete and clear. What remains is the legal structure developed by the Government, together with law enforcement officials and the public (both business and consumers) in establishing a synergistic relationship to be able to realize integrated and mutually supportive consumer protection. Then the development of a good legal culture includes guidance and supervision from the Government, and legal awareness to increase consumer protection efforts that are not only from businesses, but also the community as consumers must also be well built and synergy as well.

REFERENCES

BOOK

- 1) Ali, Zainuddin, 2007, Legal Sociology, Bandung: Sinar Grafika.
- 2) Djumhana, Muhammad, 2003, "Consumer Protection Law in Indonesia", Bandung: Citra Aditya Bakti.
- 3) Eri Safira, Martha, 2019, "Economic Law in Indonesia", Ponorogo: Nata Karya, Cet. 4.
- 4) Hasan, Sofyan, 2014, Halal Certification in Positive Law, Regulation and Implementation in Indonesia, Yogyakarta: Aswaja Pressindo.
- 5) Soekanto, Soerjono, 1982. Legal Awareness and Legal Compliance, Jakarta: Rajawali Press.
- 6) Subekti and Tjitrosudibio, 1983, Legal Dictionary, Jakarta: Pradya Paramita, 1983.
- 7) Sumatupang, Violetta, 2015, Tourism Law Based on Traditional Cultural Expressions, Bandung: Alumni.
- 8) Syauqi al-Fanjari, Ahmad, 1996, Health Values in Islamic Sharia, Jakarta: Earth Literacy, 1996.
- 9) Yafie, Ali, et al, 2004, Free Trade Jurisprudence, Jakarta, Teraju.

ARTICLES AND JOURNALS

- 1) Certified or Excluded by Imported Halal Products, www.hukumonline.com is accessed on 15 September 2019 at 22:24 WIB.
- 2) Faqiatul Mariya, Waharini, and Anissa Hakim Purwantini, "Model of Development of Halal Food Industry in Indonesia". Muqtasid Journal. No. 9. Vol. 1, June 2018.
- 3) Halal Product Guarantee Law Provides Legal Certainty to Consumers, www.hukumonline.com is accessed on 13 September 2019 at 13:15 WIB. <http://repository.unpas.ac.id/31767/1/BAB%203.pdf>.
- 4) Japan Halal Expo 2015, in Halal Journal No. 113 / May-June Th XVIII 2015, (May-June 2015).
- 5) Lim Charity, May, "Halal Products guarantee in Indonesia. Journal of Indonesian Legislation. Vol. 14. No. 01. March 2017.
- 6) Indonesian Sharia Economics Master Plan 2019-2024, Ministry of National Development Planning, 2018.
- 7) Ni'am Sholeh, Asrorun, Halal Becomes Global Trend ", GATRA Article, 29 July 2015.
- 8) Sofyan Hasan, KN., Legal Certainty in Certification and Labeling of Halal Food Products, Journal of Legal Dynamics, Vol. 14 No.2, 2014.

LAWS AND REGULATIONS

- 1) Law Number 8 of 1999 concerning Consumer Protection (Statute Book of the Republic of Indonesia Number 42 of 1999, Supplement to Statute Book of the Republic of Indonesia Number 3821).
- 2) Law Number 33 of 2014 concerning Guaranteed Halal Products (State Gazette of the Republic of Indonesia of 2014 Number 295, Supplement to the State Gazette of the Republic of Indonesia Number 5604).
- 3) Government Regulation Number 31 Year 2019 Regarding Implementation Regulation Law Number 33 Year 2014 Regarding Halal Product Guarantee (State Gazette of the Republic of Indonesia 2019 Number 88, Supplement to State Gazette of the Republic of Indonesia Number 6344).



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Achievement Goal Orientation, and Self-Regulated Learning Strategy as Correlates of Students' Academic Achievement in English Language in Anambra State, Nigeria



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ABSTRACT: Students' achievement goal orientation and self-regulated learning strategies are strong indicators and facilitators of proactive learning. The study aimed to explore the relationship among students' achievement goal orientation, self-regulated learning strategies and academic achievement in Anambra State. Six research questions and six null hypotheses guided the study. The study adopted a correlation approach to provide answers to the research questions. The population of the study comprised of 21,204 SS II students from which a sample of 630 was drawn. Multi-stage procedure was used to select the sample. Two standardized research instruments namely; Achievement Goal Orientation Questionnaire (AGOQ), and Motivated Strategies for Learning Questionnaire (MSLQ), as well as score from students' promotional examination were used for data collection. Cronbach's alpha was used to determine the reliability of the items in the instruments. Reliability indices of 0.73, for mastery-approach, 0.71, for mastery-avoidance, 0.82, for performance-approach, 0.76, for performance-avoidance, 0.72 for work-avoidance, 0.64 for monitoring, 0.73 for planning, and 0.68 for self-regulating activity respectively. The overall reliability coefficient was 0.71 which shows that the instrument was reliable and good for the study. The Pearson Product Moment Correlation was used to answer research questions 1 to 5 and hypotheses 1-5 while the research question 6 and null hypothesis 6 were answered with multiple correlation. Findings showed that students' recorded a very low positive and significant relationship between students' mastery-approach and their academic achievement in English language. Findings also revealed that the multiple correlations of these variables is positive and significant with academic achievement in English language. Finally, it was recommended based on the low relationship recorded between students' achievement goal orientation and self-regulated learning strategy that students should consider these variables as useful academic facilitators that could enable them achieve their core values in the learning exploration.

KEYWORDS: Achievement Goal Orientation, Self-Regulated Learning Strategy, and Academic Achievement.

INTRODUCTION

To succeed in education, students not only need to dispose of the unnecessary cognitive skills, but they also need to have the will or motivation to learn (Pintrich & De Groot, 1990). On this assumption; teachers, educational specialists and researchers recognized the usefulness of identifying effective pathways to promote students' adaptive motivation and achievement behaviours in classroom learning context. It will be acceptable to agree with the study of Kaplan and Maehr (2007) which emphasized that within the achievement goal theory, achievement goal orientation focuses less on what objectives individuals are trying to achieve in learning contexts, but places emphasis on why and how objectives are being achieved. Thus, the overarching emphasis is on the cognitive purposes students perceive for engaging in achievement-predicting or relating behaviour and the meanings they ascribe to that behaviour. In relation to this, achievement goal orientation represents the achievement-predicting behaviour that could determine the reasons to engage to achieve or not to engage to achieve academically. Scholars have conceptualized achievement goal orientation as a catalyst that directs energy for the realization of desired outcome (Harackiewicz, Barron, Tauer, & Elliot, 2012). This shows that achievement goal orientation is a drive, i.e., an internal state, need, or condition that motivates individuals towards a desired behaviour.

Scholars believed that achievement goal orientation is partly rooted in achievement motivation, which can be conceptualized as personality predictors, facilitators and indicators of behavioural outcomes (Mottus, Baumert, & Back, 2020). Interestingly,

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achievement goal orientation is an integrated pattern of beliefs that leads to different ways of approaching, engaging in, and responding to achievement situations (Ames, 1992). To put it differently, it is an individuals' general schema or theory for approaching the task, doing the task, and evaluating their performance on the task. This pattern is considered to be the base for successful academic performance. Mottus, Baumert, and Back, (2020) noted that the motivation students have towards engaging in academic activities is directed by a complex set of achievement goal orientation. Urdan and Maehr (1995) defined achievement goal orientation as cognitive representations of the different purposes students may adopt for their learning in achievement situation. Dweck and Leggett, (1988) defined achievement goal orientation as individually perceived reasons or purposes students have for wanting to achieve or not to achieve in any academic task. This type of goal orientation has been conceptualized as catalysts that direct energy for the realization of desired outcomes. It indicates that the pursuit of qualitatively different achievement goal orientation provides an interpretive framework that results in different patterns of emotional, behavioural and cognitive responses (Dweck& Leggett, 1988). That is to say that motivation in school can be understood by looking at the reasons or purposes students adopt while engaged in academic work.

This shows that achievement goal orientation is a comprehensive semantic system of situations or contexts which have cognitive, emotional and behavioural outcomes which learners could use to interpret their performances. For this reason, Dweck and Legget (1988) described achievement goal orientation to represent the purpose or cognitive-dynamic focus of competence relevant behaviour and the tradition of this goal orientation emphasized mostly on mastery goal and performance goal. This indicates that the purposes or reasons an individual has endorsed in pursuing an achievement task could be either for mastery effort purposes or for performance competence purposes.

Elliot and McGregor (2001) assert that achievement goal orientation would represent a structured knowledge, unit, or subjective personal conception, assumption/ schema about the purposes for an achievement task as well as other elements in terms of how success, competence, the role of effort, ability, errors and standards for evaluation are defined. These, usually refer to students' beliefs in involvement with schooling, academics activities, or learning that deals with behaviour and emotions that encompasses effort and persistence in school work. It is on this assumption that Elliot and McGregor (2001) achievement goal orientation into four clusters; such as master-approach, mastery-avoidance, performance-approach, and performance-avoidance. According to the scholars, mastery-approach goal orientation focused on the development of competence through task mastery. Mastery-avoidance goal orientation deals with trying to avoid being incompetence relative to the task or personal standard. Performance-approach goal orientation deals with trying to attain competence relative to one's peers, while performance-avoidance goal orientation deals with trying to avoid being incompetent relative to one's peers. In addition to these four clusters of achievement goal orientation, Elliot and Harachkiewicz (2006) identified a fifth type of achievement goal orientation as work-avoidance goal orientation which describes a student that tries to do as little as is necessary to get his/her set goal. Students that endorse this goal orientation seek to complete their work with minimum effort. Mastery-avoidance and performance-avoidance differ from work-avoidance as it is also referred to as academic alienation in which failure is avoided without hard work and achievement is viewed as possible (Dweck, 2006).

Suffice it to say that these qualitatively different types of achievement goal orientation were expected to yield differential effects on students' learning and achievement, but this has failed to provide strong evidence in the Nigerian academic literature. The question is would students manipulate achievement goal orientation to have a link with their self-regulated learning strategy in the process of learning to relate with academic achievement? Though, achievement goal orientation and self-regulated learning strategy are personality constructs they conceptualized the meaningful pathways that promote students' motivation and achievement behaviour in the classroom.

Previously, Zimmerman and Schunk, (2008) emphasized that students should be sensitized on the significance of self-regulated learning strategies, which has been revealed as a learning process in which self-regulated thoughts, feelings, and actions are systematically oriented towards attainment of the students' academic desires. In the view of Mischel and Ayduk, (2004), self-regulation is a broad construct which includes a monitoring and action component that encompasses a complex array of interacting cognitive and emotional processes aimed at goal attainment. In accordance with the study of Zimmerman (1986) as cited in Zimmerman and Schunk, (2008), this construct can be referred to as the degree to which individuals become meta-cognitively, motivationally, and behaviourally active participants in their own learning processes.

Alternatively, as self-regulated learning strategies related to academic achievement and cognitive skills, it is clearly not synonymous with cognitive competence alone. This supported the study of Schunk (2001) which defined self-regulated learning strategy as learning approach that results from students' self-generated thoughts and behaviours that are systematically orientated toward the attainment of their learning goals. To become self-regulated learners, students should learn to regulate the use of information-processing modes, the learning process, and the self. Similarly, Pintrich (2000) noted that self-regulated

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learning strategy involves activating and sustaining cognitions, behaviours, and emotions in a systematic way to attain learning goals. Accordingly, self-regulated learners are assumed to manage their behaviours and anxieties to facilitate learning, and actively avoid behaviours and cognitions detrimental to academic success (Stallwork-Clark, Cochran, Nolen, Tuggle, & Scott, 2000). Also, Zimmerman and Schunk, (2008) observed that self-regulated students understand the strategies and environments necessary for learning to occur, and feel capable of performing to their personal standards. For example, Schunk and Zimmerman (1994) opined that when challenged, self-regulated learners manage to understand when and how to utilize strategies that increase persistence and performance in the learning situation. Also, students purposefully use meta-cognitive strategies that incorporate self-monitoring and evaluative components that allow for self-observation and self-reaction in the context of learning.

Suffice it to say that self-regulated learning strategy is rooted in social cognitive theory of Bandura (1986) which described self-regulation in four components; such as self-observation, goal setting, self-judgment, and self-reaction. These are meta-cognitive strategies that represent the integral parts of learning strategies that are being referred to the controlling and self-regulating aspects of meta-cognition. These strategies represent useful skills for effective learning, for storage and for retrieval of information. In the present study, the clusters of self-regulated learning strategies such as; planning, monitoring, and regulating activities will be examined in relationship with the clusters of achievement goal orientation to see how these clusters could jointly relate with academic achievement. In the planning aspect, it represents the goal setting and task analysis. The monitoring aspect of this construct is referred to as regulating one's attention while reading, self-testing or questioning, helping the students to gain understanding and comprehension. And, also regulating the activities which represent the adjustment of cognitive resources in order to fulfill the tasks that help to improve performance by checking and correcting one's own performance while engaging in a task. This is an indication that the constructs such as achievement goal orientation, and self-regulating learning strategy could be salient indicators that effect students' academic achievement.

Academic achievement has been defined as scores obtained from examination that measure the extent to which a person has acquired certain information or mastered certain skills, usually as a result of specific instruction (Meherns & Lehman, 2016). These scores characterized the academic outcome obtained from achievement test assigned to assess a person's performance in a course of study which he/she has undergone. These can be regular performance feedback obtained by means of standardized test scores as presented by the approved examination board. Therefore, considering self-regulated learning strategy and achievement goal orientation as proactive processes which students should endorse as academic skills could enhance their classroom academic achievement. Thus, students can become better learners if they become more aware of their learning situation and then choose to act on that awareness. In other words, examining the assumption that students' achievement goal orientation and self-regulated learning strategy could jointly relate with their academic achievement is the major gap which the present study had sought to cover in the Nigerian academic literature.

Suffice it to say that many studies have examined the relationship that exists among these variables of studies. For example, the study of Matos, Lens, and Vansteenkiste (2007) reported that mastery-approach, was positive and significantly associated with academic achievement. The study of Niepel, Brunner, and Preckel (2014) indicated that performance-approach, performance-avoidance, mastery goals and performance-approach were positively related with academic achievement. The study of Emesi (2017) recorded that mastery-approach was low positively related with academic achievement, while mastery-avoidance, performance-approach, and performance-avoidance were very low positively related with academic achievement. In Emesi's study, the four clusters of achievement goal orientation were significantly related with academic achievement. In the study of Anyanwu and Emesi (2020) it was indicated mastery-approach, mastery-avoidance performance-approach, were low positively related to academic achievement, but performance-avoidance were low positively related with academic achievement, while work-avoidance was very low negatively related to academic achievement. In Anyanwu and Emesi's study, the five clusters of achievement goal orientation were positively and significantly related with academic achievement. Also, the study of Mohamed (2012) recorded that self-regulation was moderately correlated with the students' task in the classroom. Bakar, Shuaibu, and Bakar (2017) indicated that a strong relationship existed between self-regulated learning strategies and academic achievement. The study of Karagul (2013) indicated that there were significant positive correlations between the three dimensions of self-regulated learning strategies and learning Grade Point Average scores of the students. Therefore, the paucity of studies on how students' achievement goal orientation and self-regulated learning strategy jointly related with academic achievement in English language of the secondary school students necessitated for the present study. It is on this back drop that the researchers examined achievement goal orientation, and self-regulated learning strategy as correlates of academic achievement in English language in Anambra State, Nigeria.

RESEARCH QUESTIONS

1. What is the relationship between students' achievement goal orientation and their academic achievement in English language?

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2. What is the relationship between students' self-regulated learning strategies and their academic achievement in English language?
3. What is the relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy?
4. What is the relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy?
5. What is the relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy?
6. What is the relationship among students' achievement goal orientation and self-regulated learning strategy and academic achievement in English language?

HYPOTHESES

1. There is no significant relationship between students' achievement goal orientation and their academic achievement in English language.
2. There is no significant relationship between students' self-regulated learning strategies and their academic achievement in English language.
3. There is no significant relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy.
4. There is no significant relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy.
5. There is no significant relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy.
6. There is no significant relationship among students' achievement goal orientation and self-regulated learning strategy academic achievement in English language.

METHOD

The researchers used a correlational research design and questionnaires to collect data for the study. The population of the study consisted of 21,204 being the total number of students in senior secondary school class II in Anambra State. A sample size of 630 questionnaires were administered to respondents and collected for data analysis. Multi-stage sampling procedure was used to select the respondents. The procedures for the selection were as follows: In stage one, three education zones were selected from the six education zones in the state by simple random sampling. Then in stage two, from each sampled education zone, one local government area (L.G.A) was selected through simple random sampling given a total of three (3) L.G.As. In stage three, from each sampled L.G.A, 10 schools were randomly selected giving a total of 30 schools. Then, from each of the schools, 21 SSII students were selected for the study using a table of simple random sampling. This gave a total number of 630 students used in the study

The study adapted two standardized research questionnaires namely, Achievement Goal Orientation Questionnaire (AGOOQ, Elliot, Murayama & Pekrun, 2011) and Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich, Smith, Garcia, & McKeachie, 1996). The students' achievement scores were obtained from the schools before the start of the administration of the other two instruments. The students' achievement scores in English language from the state wide senior secondary one (SS1) promotion examination were obtained from the schools before the administration of the instruments.

The methods used for validating the instruments were face and construct validity by the three experts from the Faculty of Education, Nnamdi Azikiwe University Awka. Cronbach's alpha reliability method was used to determine the internal consistency of the items in the research questions such as; 0.73, for mastery-approach, 0.71, for mastery-avoidance, 0.82, for performance-approach, 0.76 for performance-avoidance, 0.72 for work-avoidance, 0.73 for planning, 0.64 for monitoring, 0.68 for self-regulating activity respectively. The overall reliability coefficient was 0.72 which shows that the instrument was reliable and good for the study. According to guide lines by Haradhan, (2017), a coefficient of 0.6 is considered to be poor, 0.7 is acceptable while over 0.8 is good. The Pearson Product Moment Correlation Coefficient was used in answering research questions one to five and testing of hypotheses one to five. Multiple correlation was used to answer research question six and to test hypothesis six at 0.05 level of significance. The decision rule for null hypotheses was that P-value higher than 0.05 was not rejected, while the hypotheses with P-value lower than 0.05 was rejected. The rough guide developed by Okoye (2015) was adopted for guide and interpretation of correlation coefficient result values when a large number of pairs of scores have been correlated. The decision rules to interpret the research questions were presented as follows: $r = .00$, no relationship; $r = \pm 0.0$ to ± 0.2 , very low relationship;

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$r = \pm 0.2$ to ± 0.4 , low relationship; $r = \pm 0.4$ to ± 0.6 , medium relationship; $r = \pm 0.6$ to ± 0.8 , high relationship; and $r = \pm 0.8$ to ± 1.0 , very high relationship.

PRESENTATION OF RESULTS

Research Question 1: What is the relationship between students' achievement goal orientation and academic achievement in English language?

Table 1. Pearson Correlation for the Relationship between students' achievement goal orientation and academic achievement in English language.

(N= 630)

Variables	Academic achievement (r)	Remarks
Mastery-approach	.101	very low positive relationship
Mastery-avoidance	.111	very low positive relationship
Performance-approach	.064	very low positive relationship
Performance-avoidance	.106	very low positive relationship
Work-avoidance	.102	very low positive relationship

The results in table 1 reveal a very low positive relationship between students' achievement goal orientation components and their academic achievement in English language.

Research Question 2: What is the relationship between students' self-regulated learning strategy and academic achievement in English language?

Table 2. Pearson Correlation for the Relationship between students' self-regulated learning strategies and academic achievement in English language.

(N= 630)

Variables	Academic achievement (r)	Remarks
Planning	.078	very low positive relationship
Monitoring	.066	very low positive relationship
Regulating activity	.098	very low positive relationship

The results in table 2 reveal a very low positive relationship between students' self-regulated learning strategy components and their academic achievement in English language.

Research Question 3: What is the relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy?

Table 3. Pearson Correlation for the Relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy.

(N= 630)

Variables	Planning (r)	Remarks
Mastery-approach	.096	very low positive relationship very
Mastery-avoidance	.065	low positive relationship
Performance-approach	-.070	very low negative relationship
Performance-avoidance	.092	very low negative relationship
Work-avoidance	.046	very low positive relationship

The results in table 3 reveal a very low positive relationship among mastery-approach, mastery-avoidance, performance-avoidance, work-avoidance and students' planning. Also, a very low negative relationship was recorded between students' performance-approach, and planning.

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Research Question 4: What is the relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy?

Table 4. Pearson Correlation for the Relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy.

(N= 630)

Variables	Monitoring (r)	Remarks
Mastery-approach	-.056	very low negative relationship very
Mastery-avoidance	.040	low positive relationship
Performance-approach	.704	very low positive relationship
Performance-avoidance	-.044	very low negative relationship
Work-avoidance	.062	very low positive relationship

The results in table 4 reveal a very low negative relationship among mastery-approach, performance-avoidance and students' monitoring. Also, a very low positive relationship was recorded among students' mastery-avoidance, performance-approach, work-avoidance and monitoring.

Research Question 5: What is the relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy?

Table 5. Pearson Correlation for the Relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy.

(N= 630)

Variables	Regulating activity (r)	Remarks
Mastery-approach	-.044	very low negative relationship very
Mastery-avoidance	.018	low positive relationship
Performance-approach	-.045	very low negative relationship
Performance-avoidance	-.007	very low negative relationship
Work-avoidance	.023	very low positive relationship

The results in table 5 reveal a very low negative relationship among mastery-approach, performance-approach, performance-avoidance and students' regulating activity. Also, a very low positive relationship was recorded among students' mastery-avoidance, work-avoidance and regulating activity.

Research Question 6: What is the relationship among students' achievement goal orientation and self-regulated learning strategy and academic achievement in English language?

Table 6: Pearson Correlation for the Pearson Correlation for the Relationship among Students' Achievement goal orientation, Self-regulated Learning Strategy and Academic Achievement in English language.

(N= 630)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.202 ^a	.041	.029	9.77921

Table 6 reveals that the relationship among students' achievement goal orientation, self-regulated learning strategy and academic achievement is .202^a. The standard error of estimate is 9.77921. Also, students' achievement goal orientation, self-regulated learning strategy contributed 4.1% to the variation in their achievement in English language.

Hypothesis 1: There is no significant relationship between students' achievement goal orientation and their academic achievement in English language.

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Table 7. The test of significant relationship between students' achievement goal orientation and their academic achievement in English language.

(N = 630)

Variable	English achievement (r)	P-value	Remark
Mastery approach	.101	.012	S
Mastery avoidance	.111	.005	S
Performance approach	.064	.110	NS
Performance-avoidance	.106	.008	S
Work-avoidance	.102	.010	S

NS-Non-Significant correlation at 0.05 level of significance.

The results in table 7 reveal that there is a significant relationship between students' mastery-approach and their academic achievement in English language ($r = .101 > 0.05$). There is a significant relationship between students' students' mastery-avoidance and their academic achievement in English language ($r = .111 > 0.05$). There is no significant relationship between students' performance-approach and their academic achievement in English language ($r = .064 < 0.05$). There is also a significant relationship between students' performance-avoidance and their academic achievement in English language ($r = .106 > 0.05$). There is also a significant relationship between students' work-avoidance and their academic achievement in English language ($r = .102 > 0.05$).

Hypothesis 2: There is nosignificant relationship between students' self-regulated learning strategy and their academic achievement in English language.

Table 8. The test of significant relationship between students' self-regulated learning strategy and their academic achievement in English language.

(N = 630)

Variable	English achievement (r)	P-value	Remark
Planning	.078	.050	S
Monitoring	.066	.099	NS
Regulating activity	.098	.014	S

NS-Non-Significant correlation at 0.05 level of significance.

The results in table 8 reveal that there is a significant relationship between students' planning and their academic achievement in English language ($r = .078 > 0.05$). There is a no significant relationship between students' students' monitoring and their academic achievement in English language ($r = .066 < 0.05$). There is a significant relationship between students' regulating activity and their academic achievement in English language ($r = .098 > 0.05$).

Hypothesis 3: There is no significant relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy.

Table 9. The test of significant relationship between students' achievement goal orientation and their planning component of self-regulated learning strategy.

(N = 630)

Variable	Planning (r)	P-value	Remark
Mastery approach	.096	.016	S
Mastery avoidance	.065	.105	NS
Performance approach	-.070	.081	NS
Performance avoidance	.092	.020	S
Work-avoidance	.046	.250	NS

NS-Non-Significant correlation at 0.05 level of significance.

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The results in table 9 reveal that there is a significant relationship between students' mastery-approach and their planning ($r = .096 > 0.05$). There is a no significant relationship between students' students' mastery-avoidance and their planning ($r = .065 < 0.05$). There is a no significant relationship between students' performance-approach and their planning ($r = -.070 < 0.05$). There is also a significant relationship between students' performance-avoidance and their planning ($r = .092 > 0.05$). There is also a no significant relationship between students' work-avoidance and their planning ($r = .046 < 0.05$).

Hypothesis 4: There is no significant relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy.

Table 10. The test of significant relationship between students' achievement goal orientation and their monitoring component of self-regulated learning strategy.

(N = 630)

Variable	Monitoring (r)	P-value	Remark
Mastery approach	-.059	.139	NS
Mastery avoidance	.040	.315	NS
Performance approach	.704	.000	S
Performance avoidance	-.044	.275	NS
Work-avoidance	.062	.123	NS

NS-Non-Significant correlation at 0.05 level of significance.

The results in table 10 reveal that there is a no significant relationship between students' mastery-approach and their monitoring ($r = -.059 < 0.05$). There is a no significant relationship between students' students' mastery-avoidance and their monitoring ($r = .040 < 0.05$). There is a significant relationship between students' performance-approach and their monitoring ($r = .704 > 0.05$). There is also a no significant relationship between students' performance-avoidance and their planning ($r = -.044 < 0.05$). There is also a no significant relationship between students' work-avoidance and their planning ($r = .062 < 0.05$).

Hypothesis 5: There is no significant relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy.

Table 11. The test of significant relationship between students' achievement goal orientation and their regulating activity component of self-regulated learning strategy.

(N = 630)

Variable	Regulating activity (r)	P-value	Remark
Mastery approach	-.044	.266	NS
Mastery avoidance	.018	.649	NS
Performance approach	-.045	.262	NS
Performance avoidance	-.007	.854	NS
Work-avoidance	.023	.560	NS

NS-Non-Significant correlation at 0.05 level of significance.

The results in table 11 reveal that there is a no significant relationship among the five components of achievement goal orientation and students' regulating activity ($r = -.044 < 0.05$, $r = .018 < 0.05$, $r = -.045 < 0.05$, $r = -.007 < 0.05$, and $r = .023 < 0.05$).

Hypothesis 6: The proportion of variance in academic achievement in English language that is explained by students' achievement goal orientation and self-regulated learning strategy is not significant.

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Table 12. Multiple Correlation of Students' Achievement Goal Orientation, Self-regulated Learning Strategies and Academic Achievement in English Language.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R. Square Change	F.Change	df1	df2	Sig.F Change
1	.202 ^a	.041	.029	9.77921	.041	3.315	8	621	.001

The table 12 shows a multiple correlation run to examine the relationship among students' achievement goal orientation, self-regulated learning strategy and academic achievement in English language. The result in the table also reveals that the relationship among these variables is positive and significant with academic achievement in English language ($r = .202 < .001$). Therefore, it was concluded that the relationship of students' achievement goal orientation, and self-regulated learning strategy can jointly relate with their academic achievement in English language

DISCUSSION OF FINDINGS

Findings from table one reveal that the five clusters of achievement goal orientation recorded a very low positive relationship with students' academic achievement in English language. In table seven, the hypotheses testing indicated that mastery-approach, mastery-avoidance, performance-avoidance, and work avoidance recorded a significant relationship with their academic achievement in English language while students' performance-approach recorded a non-significant relationship with their academic achievement in English language. This supported the study of Matos, Lens, and Vansteenkiste (2007) which reported that mastery-approach, was positive and significantly associated with academic achievement. This supported the study of Niepel, Brunner, and Preckel (2014) which indicated that performance-approach, performance-avoidance, mastery goals, and performance-approach were positively related with academic achievement. This supported the study of Emesi (2017) which recorded that mastery-approach was low positively related with academic achievement, while mastery-avoidance, performance-approach, and performance-avoidance were very low positively related with academic achievement. In Emesi's study, the four clusters of achievement goal orientation were significantly related with academic achievement, though the performance-approach is not significant with academic achievement in the present study. The present findings supported the study of Anyanwu and Emesi (2020) which indicated the four of the achievement goal orientation were low positively related to academic achievement, while work-avoidance was very low negatively related to academic achievement. In Anyanwu and Emesi's study, the five clusters of achievement goal orientation were positively and significantly related with academic achievement, but in the present study only the performance-approach was not significant with academic achievement.

Findings from table two reveal that the clusters of self-directed learning strategy indicated a very low positive relationship with students' academic achievement in English language. In table eight the hypotheses testing indicated that planning and regulating activity were significantly related with their academic achievement in English language, while monitoring recorded a non-significant relationship with their academic achievement in English language. At the relationship level, these supported the study of Mohamed (2012) which recorded that self-regulation was moderately correlated with the students' task in the classroom, as well as the study of Bakar, Shuaibu, and Bakar (2017) which indicated that a strong relationship existed between self-regulated learning strategies and academic achievement. Then, in the hypothesis testing it supported the study of Karagul (2013) indicated that there were significant positive correlations between the three dimensions of self-regulated learning strategies and learning Grade Point Average scores of the students, though in the present study monitoring strategy was not significantly related with academic achievement.

Finally, findings in table three reveal that the five clusters of achievement goal orientation recorded a very low positive relationship with students' planning strategy. Findings in table four indicated mastery-avoidance, performance-approach, and work-avoidance were very low positively related with students' monitoring strategy. The mastery-avoidance and performance-avoidance recorded a very low negative relationship with students' monitoring strategy. The findings from table four recorded that mastery-approach, and performance-avoidance were negatively related with students' monitoring strategy, while mastery-avoidance, performance-approach, and work-avoidance were very low positively related with students' monitoring strategy. Also, findings in table five indicated that mastery-avoidance and work-avoidance recorded a very low positive relationship with students' regulating activity, while mastery-approach, performance-approach, and performance-avoidance were negatively related to their regulating activity. The hypotheses testing in table nine indicated that mastery-approach and performance-avoidance were significantly related with students' planning strategy, while mastery-avoidance, performance-approach, and work-avoidance were

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not significantly related with students' planning strategy. In the hypotheses testing, findings in table ten reveal that all the four clusters of achievement goal orientation were not significantly related students' monitoring strategy, excluding performance-approach which recorded a significant relationship with monitoring strategy. In table eleven, it was indicated that the five clusters of achievement goal orientation were not significantly related with students' regulating activity. In table twelve, the tripartite relationship among the three variables which is the hypothesis testing of table six indicated that students' achievement goal orientation and their self-regulated learning strategy were positively and significantly related with their academic achievement in English language. Then, as a result of the paucity of study on achievement goal orientation and self-regulated learning strategies in relation with academic achievement among the secondary school students in Anambra state, there is no relative study that could used to compare these last findings.

CONCLUSION

The results of the study reveal that very low positive relationship had existed between students' achievement goal orientation and self-regulated learning strategy. The proportion of variance in academic achievement that was explained by students' achievement goal orientation and self-regulated learning strategy is low in percentage rating. The multiple correlation run to examine how students' achievement goal orientation and self-regulated learning strategy jointly related with their academic achievement and statistically related with academic achievement in English language. Therefore, for any secondary institution in Nigeria to advance academically, the imperative issues that link to these personality constructs such as achievement goal orientation and self-regulated learning strategy as they normally contribute to the development of students' academic potentialities need to be thoroughly addressed, through collective orientation and motivational talks to enable students' to hold and endorse good achievement goal orientation and self-regulated learning strategy during the learning process.

RECOMENDATIONS

Based on the findings, the following recommendations were made:

1. It is recommended that constant investigation on the relationship between achievement goal orientation and self-regulated learning strategy should be encouraged for this will have a significant contribution to the students' academic vigor to achieve in academic context.
2. All actors involved in educational programme should join forces to raise hope concerning the beliefs students have manipulating their self-regulated learning strategy and achievement goal orientation as this will help them achieve more meaningful results in their academic task.
3. Based on the low relationship recorded between students' achievement goal orientation, self-regulated learning strategy, students should consider these variables as useful academic facilitators that could enable them achieve their core values in the learning exploration.

REFERENCES

- 1) Ames, C. (1992). Classroom: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84, 261-271.
- 2) Anyanwu, A. N., & Emesi, K. E. (2020). Secondary school students' self-esteem and achievement goal orientation as correlate of academic achievement in mathematics in Anambra state. *International Journal of Multidisciplinary and Current Educational Research*, 2 (5) 218-226.
- 3) Baker, N.A., Shuaibu, A., & Baker, R.A. (2017). Correlation of self-regulated learning and academic achievement among university, Sultan Zainal Abidin undergraduate students. *International Journal of Academic Research in Business and Social Sciences*, 7(4).
- 4) Bandura, A. (1986). *Social foundation of thought and action: A social; cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- 5) Dweck, C. S. (2006). Motivational processes affecting learning. *American Psychologist*, 41, 1040-1048.
- 6) Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95 (2), 256-273.
- 7) Elliot, A. J., Murayama, K., & Pekrun, R. (2011). A 3 x 2 achievement goal model. *Journal of Educational Psychology*, 103 (3), 632-648. doi: 10.1037/a0023952.
- 8) Elliot, A. J., & McGregor, H. A. (2001). A 2x2 achievement goal framework. *Journal of Personality and Social Psychology*, 80, (3), 501-519.
- 9) Elliot, A. J., & Harackiewicz, J. M. (2006). Approach and avoidance achievement goal and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*. 70, (3), 461-475.

Achievement Goal Orientation, and Self-Regulated Learning Strategy as Correlates of Students' Academic Achievement in English Language in Anambra State, Nigeria

- 10) Emesi K.E. (2017). Relationship among secondary school students' achievement goal orientation, academic self-concept and academic achievement in Anambra State. Unpublished master's thesis.
- 11) Harackiewicz, J. M. Barron, K. K, Tauer, J. P., & Elliot, A. J. (2012). Predicting success in college: A longitudinal study of achievement goals and ability measures as predictors of interest and performance from freshman year through graduation. *Journal of Educational Psychology*, 94 (3), 562-645.
- 12) Haradhan, M. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of SpiruHaret University*, 17(3), 58-82.
- 13) Kaplan, A., & Maehr, M. (2007). Achievement goals and students' well-being. *Contemporary Educational Psychology*, 24, 330-358.
- 14) Kanagul, B.I. (2015). The relationship between self-regulated learning strategies and academic achievement in a Turkish EFL setting. *Academic Journals*, 8 (17), 1544-1550.
- 15) Matos, Lens, W., & Vansteenkiste, M. (2007). Achievement goals, learning strategies and language achievement among Peruvian, high school students. *Psychologica Belgica*, 47 (12)51-70.
- 16) Mehrens, W. A, & Lehmann, I. J. (2016). *Measurement and evaluation in education and psychology*. New York Holt, Rinhart and Winston.
- 17) Mischel, W. & Ayduk, O. (2004). Willpower in a cognitive-affective processing system. In R. E. Baumeister & K. D, Vohs (Eds.). *Handbook of self-regulation* (pp. 99-129). New York: Guilford Press.
- 18) Mohamed, A. H.H. (2012). The relationship between metacognition and self-regulation in young children. *Procedia Social and Behavioural Science*, 69, 477-486.
- 19) Mottus, R, Baumert, A., & Bank, M. D. (2020). Descriptive, predictive and explanatory personality research: Different goals, different approaches, but a shared need to move beyond the big few traits. *European Journal of Personality*, 15 (6), 38-56.
- 20) Niepel, C. Brunner, M., & Preckel, F. (2014). Achievement goal, academic self-concept, and school grades in mathematics: longitudinal reciprocal relations in above average ability secondary school students. *Contemporary Educational Psychology*, 39, 301-313.
- 21) Okoye, R. (2015). *Educational and psychological measurement and evaluation (second edition)*: Awka, Erudition Publisher.
- 22) Pintrich, P. R, Smith, D. A. F, Garcia, T., & Mckeachie, W. J. (1976). *A manual for the use of motivated strategies for learning questionnaire (MSLQ)*. Ann Arbor, Michigan: University of Michigan.
- 23) Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. in M. Boekaerts, P. R. Pintrich, & M. Zendner (Eds). *Handbook of self-regulation* (pp.415-502). San Diago CA: Academic.
- 24) Pintrich, P.R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33-40.
- 25) Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In B.J. Zimmerman & D.H., Schunk (Eds.). *Self-regulated learning and academic achievement: Theoretical perspective*, (vol.2, pp. 125-152). Mahwah, NJ: Lawrence Erlbaum.
- 26) Schunk, D. H., & Zimmerman, B. J. (1994). *Self-regulation of learning and performance: Issues and education applications*. Hilledale, NJ: Lawrence Erlbaum.
- 27) Stalwirth-Clark, R., Cochran, J., Nolen, M. T., Tuggle, D. L., & Scoff, J. S. (2000). Test anxiety and performance on reading competency test. *Research and Teaching in Developmental Education*, 17, 39-47.
- 28) Urdan, T.C., & Maehr, M. L. (1995). Beyond a two-goal theory of motivation and achievement. A case for social goals. *Review of Educational Research*, 65(3), 213-243.
- 29) Zimmerman, B. J. (1986). Development of self-regulated learning: Which are the key sub processes. *Contemporary Educational Psychology*, 16, 307-313.
- 30) Zimmerman, B. J., & Schunk, D. H. (2008). Motivation: An essential dimension of self-regulated learning. In D. H Schunk & B. J. Zimmerman (Eds.). *Motivation and self-regulated learning: Theory, research, and application* (pp. 1-30). New York: Laurance Erlbaum.



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Survey of Physical Fitness Level of Students Class V Elementary School Mojosongo V Surakarta



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ABSTRACT: The purpose of this study was to find out how good the level of physical fitness of the fifth grade students of Mojosongo V Surakarta State Elementary School. This research is quantitative descriptive. The method used is a survey. The population in this study were all of the fifth grade students of Mojosongo V Surakarta State Elementary School. Sampling used a total sampling technique, namely of the fifth grade students of Mojosongo V Surakarta State Elementary School, totaling 28 students. Data collection techniques with tests and measurements. The test instrument used to measure the variables using the TKJI test were Sit ups, Vertical jumps, Pull Ups, 40 m Sprint Runs, 600 m Runs. The data analysis technique used quantitative descriptive statistics presented in the form of percentages. Based on the results of the study showed that as many as 2 students or 7.1% had a level of physical fitness in the "moderate" category, as many as 17 students or 60.7% had a level of physical fitness in the "less" category, and as many as 9 students or 32.1% have a level of physical fitness with the category of "very little". So it can be concluded that the majority of the physical fitness level of the fifth grade students of Mojosongo V Surakarta State Elementary School is included in the "Less" category.

KEYWORDS: Physical Fitness, Students, Elementary School

INTRODUCTION

Physical education, as an integral part of the overall education system (Adyanto et al., 2018). The goal is to achieve holistic development, namely balance, physical and mental harmony. It also focuses on improving physical fitness through physical activity, including motor skills, critical thinking skills, emotional stability, social skills, reasoning, and moral behavior (Setiawan et al., 2020). Physical education, especially movement experience, makes a dominant contribution to the growth and development of students as a whole, so that the view of human life that body and soul are not separated from each other can really be proven (Arifin, 2017).

Physical fitness plays an important role in a person's life. People who are in good physical condition are definitely more productive and can work effectively and efficiently (Hardiansyah & Syampurma, 2017). Where this ability describes the body's ability to function aerobically, the ability of the circulatory and respiratory systems to supply the necessary oxygen throughout the body, including the brain, which is the central organ for mind analysis (Abduh et al., 2020). The more often humans exercise, the more their health will be maintained (Rachman, 2011). Good physical fitness will also support a learning process and students' cognitive in other subjects. Students who have good physical conditions can do their jobs well (Zulki, 2016). Physical fitness and good physical condition increase students' learning abilities and motivation (Hakim et al., 2020). This means that the physical fitness of individuals affects their willingness and physical and mental capacity to cope with the workload (learning activities) of their daily efforts (Prasetio et al., 2018).

Early childhood is a golden period for the development of skills, physical activity and the development of motor skills needed for sports, in accordance with the development and motor skills of children (Dwijayanthi, 2020). The lack of activity provided is an obstacle to the growth process (Laela et al., 2019). To achieve the goals and benefits of exercise at an early age, we need to create a practical guide to share (Anwar & Jatmika, 2015).

Elementary school children aged 6-12 years, have stronger physical characteristics, personality and dynamism, are not dependent on their parents (Iwandana et al., 2021). Elementary school-age children are a period in which children experience many different changes in the process of growth and development that will affect the formation of children's character and personality (Adi et al., 2020). The school age stage becomes the basic experience of children, who are responsible for their own behavior in relationships with peers, parents, and others (Iwandana et al., 2018).

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Health is generally defined as being free from disease. Healthy means free from disease does not necessarily guarantee the child's ability to be able to survive in following lessons, think, and respond to lessons received in class or when studying at home. However, if students have physical fitness which is in the poor category, it is possible that they will not be able to follow/receive the learning load which is actually the task and material from the teacher. TKJI (Indonesian Physical Fitness Test) is a measuring tool for assessing the physical fitness of elementary school students (Anwar & Jatmika, 2015).

Based on the background, the researchers wanted to conduct research to determine the level of physical fitness of the fifth grade students of Mojosongo V Surakarta State Elementary School. It is hoped that the results of this study can be used as a reference for the teaching and learning process, especially physical education subjects.

METHOD

This research is quantitative descriptive. The method used is a survey. The population in this study were all fifth grade elementary school students at the fifth grade students of Mojosongo V Surakarta State Elementary School. Sampling used a total sampling technique, namely of the fifth grade students of Mojosongo V Surakarta State Elementary School, totaling 28 students. Data collection techniques with tests and measurements. The test instrument used to measure the variables using the TKJI test were Sit ups, Vertical jumps, Pull Ups, 40 m Sprint Runs, 600 m Runs. The data analysis technique used quantitative descriptive statistics presented in the form of percentages.

Table 1. Table of TKJI Values for Children aged 10-12 years Boys

Score	Run 40 meters sprint	Pull up	Sit ups 30 Seconds	Vertical Jump	Run 600 Meters	Score
5	s.d 6.3''	51'' keatas	23 Keatas	46 Keatas	s.d-2'09''	5
4	6.4''-6.9''	31''-50''	18-22	38-45	2'10''-2'30''	4
3	7.0''-7.7''	15''-30''	12-17	31-37	2'31''-2'45''	3
2	7.8''-8.8''	5''-14''	4-11	24-30	2'46''-3'44''	2
1	8.9''-dst	0''-4''	0-3	0-23	3'45''-dst	1

Table 2. Table of TKJI Values for Girls Age 10-12 years

Score	Run 40 meters sprint	Pull up	Sit ups 30 Seconds	Vertical Jump	Run 600 Meters	Score
5	s.d 6.7''	40'' keatas	20 keatas	42 keatas	s.d-2'32''	5
4	6.8''-7.5''	20''-39''	14-19	34-41	2'33''-2'54''	4
3	7.6''-8.3''	8''-19''	7-13	28-33	2'55''-3'28''	3
2	8.4''-8.6''	2''-7''	2-6	21-27	3'29''-4'22''	2
1	8.7''-dst	0''-1''	0-1	0-20	4'23''-dst	1

Table 3 Table of Indonesian Physical Fitness Test Norms (TKJI)

Number	Total Value	Classification
1.	13 – 14	Very Good
2.	11 – 12	Good
3.	9 – 10	Medium
4.	7 – 8	Less
5.	5 – 6	Less once

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RESULTS AND DISCUSSION

Based on the results of research conducted on the fifth grade students of Mojosongo V Surakarta State Elementary School. about the level of physical fitness as measured by the Indonesian Physical Fitness Test (TKJI) instrument for ages 10-12 years which includes: (1) Sit ups, (2) Vertical Jump, (3) Pull up test, (4) 40 M sprint run, and (5) 600 meter running test. Descriptive Statistics research on the level of physical fitness of fifth grade students at SD Negeri Mojongsongo, the results obtained are as follows:

Table 4. The results of the TKJI test

Interval	Category	Frequency	Percentage (%)
22-25	Very Good	0	0
18-21	Good	0	0
14-17	Medium	2	7,1
10-13	Less	17	60,7
5-9	Less once	9	32,1
AMOUNT		28	100

The table above shows the level of physical fitness of the fifth grade students of SD Mojosongo V Surakarta. A total of 0 students or 0% have a level of physical fitness in the "very good" category, 0 students or 0% have a physical fitness level in the "good" category, as many as 2 students or 7.1% have a physical fitness level in the category "medium", as many as 17 students or 60.7% had a level of physical fitness in the "less" category, and as many as 9 students or 32.1% had a physical fitness level in the "very less" category. Then it was obtained that the level of physical fitness of the fifth grade students of Mojosongo V Surakarta State Elementary School was included in the "Less" category.

Physical education teachers play an important role in achieving physical fitness in their students (Prasetio et al., 2018). By teaching students about physical fitness and providing physical fitness exercises to students. In addition, getting enough nutrition will keep the body stable, which will help maintain physical fitness, and energy will be sufficient to keep the body healthy and fit (Hambali et al., 2019).

Increasing physical fitness in the school environment, especially elementary schools, needs to be fostered to support the achievement of an optimal teaching and learning process, because if students have good physical fitness, they will be able to carry out their learning obligations well as well. With good physical health, children can carry out their daily activities well, such as playing with their peers (Pamungkas & Dwiyoogo, 2020). In order to be able to take lessons and concentrate on subjects, an elementary school student not only needs to be healthy, but also physically fit (Iwandana, 2013).

This kind of freshness can be obtained through physical activity that is programmed systematically and regularly (Iwandana et al., 2022). Extracurricular provides very important additional skills that are not obtained in other subjects, such as mental attitude and dedication to the profession in the future, besides that it has a very positive effect on their physical fitness and fitness. Extracurricular aims to improve physical fitness, will be very helpful in the process of improving the degree of physical fitness of students if it can be implemented in schools. Students with a good level of physical fitness will be able to carry out their learning activities smoothly. Students will not get tired easily so it will be easy to accept the subject matter given by the teacher. This will facilitate the implementation of the teaching and learning process in schools. Physical fitness can be owned by students with a variety of efforts. One of them is by doing regular physical activity. In addition, it must also be supported by consuming nutritious food to meet the nutritional needs of the body.

CONCLUSION

Based on the results of the study, it can be concluded that the majority of the physical fitness level of the fifth grade students of Mojosongo V Surakarta State Elementary School is included in the "Less" category with a total of 17 children.

REFERENCES

- 1) Abduh, I., Agusman, M., & Tadulako, U. (2020). *Analisis Hubungan Tingkat Kesegaran Jasmani terhadap Hasil Belajar Siswa*. 5, 75–82.
- 2) Adi, B. S., Sudaryanti, S., & Muthmainah, M. (2020). Implementasi permainan tradisional dalam pembelajaran anak usia

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- dini sebagai pembentuk karakter bangsa. *Jurnal Pendidikan Anak*, 9(1), 33–39. <https://doi.org/10.21831/jpa.v9i1.31375>
- 3) Adyanto, S. P., Mujahir, & Fajriyah, K. (2018). Karakteristik siswa anggota ekstrakurikuler pencak silat ditinjau dari nilai karakter. *Jurnal Sinektik*, 1(1), 46–52.
 - 4) Anwar, M. H., & Jatmika, M. (2015). Uji falsifikasi relevansi konsep dan praktis instrument TKJI (tes kebugaran jasmani indonesia) serta penyusunan model tes bagi anak-anak (6 - 9 tahun). *Jurnal Pendidikan Jasmani Indonesia*, 11(2), 73–81.
 - 5) Arifin, S. (2017). Peran Guru Pendidikan Jasmani Dalam Pembentukan Pendidikan Karakter Peserta Didik. *Multilateral Jurnal Pendidikan Jasmani Dan Olahraga*, 16(1). <https://doi.org/10.20527/multilateral.v16i1.3666>
 - 6) Dwijayanthi, N. M. A. (2020). Revitalisasi Permainan Tradisional Bali Sebagai Pengembangan Karakter Anak Usia Dini. *Widya Kumara Jurnal Pendidikan Anak Usia Dini*, 1(1), 89–97.
 - 7) Hakim, A. L., Subandowo, M., & Rohman, U. (2020). Pengaruh Circuit Training dan Interval Training Dalam Tes Kebugaran Jasmani pada Ektrakurikuler Futsal Siswa SMP. *Jurnal Kejaora: Jurnal Kesehatan Jasmani Dan Olah Raga*, 5(11), 62–65.
 - 8) Hambali, R. M., Kusmaedi, N., & Jajat. (2019). Tingkat Kebugaran Jasmani Lansia Dikaji Berdasarkan Tingkat Partisipasi dan Gender. *Jurnal Keolahragaan*, 5(2), 1–11.
 - 9) Hardiansyah, S., & Syampurma, H. (2017). *Perbedaan Tingkat Kesegaran Jasmani Berdasarkan Status Gizi*. 7.
 - 10) Iwandana, D. T. (2013). Peran Guru Pendidikan Jasmani Olahraga Dan Kesehatan Terhadap Pelaksanaan Progam Usaha Kesehatan Sekolah Di Sekolah Dasar Se-Kecamatan Buka Teja Kabupaten Purbalingga Tahun 2012/2013. *Journal of Chemical Information and Modeling*, 58(12), 7250–7257.
 - 11) Iwandana, D. T., Falaahudin, A., & Nugroho, W. A. (2021). Sport Values in Traditional Games as Playing Activities for Children. *TEGAR: Journal of Teaching Physical Education in Elementary School*, 4(2), 96–100. <https://doi.org/10.17509/tegar.v4i2.33798>
 - 12) Iwandana, D. T., Falaahudin, A., & Romadhoni, M. (2022). Koordinasi Kegiatan Menjaga Kebugaran Melalui Massage Bagi Atlit KONI Bantul Yogyakarta. In *Prosiding Seminar Nasional Hasil Riset dan Pengabdian* (Issue 4).
 - 13) Iwandana, D. T., Sugiyanto, S., & Hidayatullah, M. F. (2018). Activities Playing Traditional Children in The Highland of Banjarnegara. *Asian Exercise and Sport Science Journal*, 2(2), 28–36. <https://doi.org/10.30472/aesj.v2i2.33>
 - 14) Laela, I., Muliasari, D. N., & Silawati, E. (2019). Mengembangkan Kemampuan Berbicara Anak dalam Menceritakan Kembali dengan Metode Show And Tell. *Cakrawala Dini: Jurnal Pendidikan Anak Usia Dini*, 10(1), 76–82.
 - 15) Pamungkas, I. A., & Dwiyoogo, W. D. (2020). Pengembangan Media Pembelajaran Berbasis Mobile Learning Untuk Aktifitas Kesegaran Jasmani Siswa kelas X Sekolah Menengah Kejuruan. *Sport Science and Health*, 2(5), 272–278.
 - 16) Prasetio, E., Sutisyana, A., Ilahi, B. R., & Defliyanto, D. (2018). Tingkat Kebugaran Jasmani Berdasarkan Indeks Massa Tubuh Pada Siswa Smp Negeri 29 Bengkulu Utara. *Kinestetik*, 2(2), 166–172. <https://doi.org/10.33369/jk.v2i2.8738>
 - 17) Rachman, H. A. (2011). Keterlaksanaan pendidikan jasmani dan olahraga di Daerah Istimewa Yogyakarta. *Jurnal Pendidikan Jasmani Indonesia*, 8(1), 38–47.
 - 18) Setiawan, A., Yudiana, Y., Ugelta, S., Oktriani, S., Budi, D. R., & Listiandi, A. D. (2020). Hasil Belajar Pendidikan Jasmani dan Olahraga Siswa Sekolah Dasar: Pengaruh Keterampilan Motorik (Tinggi) dan Model Pembelajaran (Kooperatif). *TEGAR: Journal of Teaching Physical Education in Elementary School*, 3(2), 59–65. <https://doi.org/10.17509/tegar.v3i2.24513>
 - 19) Zulki, E. (2016). Pengaruh Pembelajaran Permainan Bola Besar Terhadap Tingkat Kesegaran Jasmani. *Journal of Physical Education, Health and Sport*, 3(1), 44–49. <https://journal.unnes.ac.id/sju/index.php/peshr/article/view/264>



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Confidence, Motivation, and Anxiety; Does it Affect the Performance of Basketball Athletes?



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ABSTRACT: This study aims to analyze the effect of self-confidence, motivation, and anxiety on the performance of basketball athletes. This type of research is quantitative with an ex post facto approach. The population in this study were high school basketball athletes in Baubau City, totaling 119 people (68 male, 51 female). The instrument used is a questionnaire. The data analysis technique used the F test. The results showed that (1) there was a positive effect of self-confidence on competitive performance in high school basketball athletes in Baubau City. (2) there is a positive motivational effect on competitive performance in high school basketball athletes in Baubau City. (3) there is a negative effect on match performance on high school basketball athletes in Baubau City. (4) There is an effect of self-confidence, motivation and anxiety on the competitive performance of high school basketball athletes in Baubau City.

KEYWORDS: confidence, motivation, anxiety, competitive performance

INTRODUCTION

Basketball is one of the most popular team sports and is quite popular. Basketball is a group ball sport consisting of two teams of five people each. According to the rules, basketball players are not allowed to take more than 2 steps after they start tackling the ball (Omi et al., 2018). Basketball is played by two teams, each team is played by five players. Each team tries to get as many balls into the opponent's basket as possible and prevent the other side from putting the ball into its own basket.

The game of basketball consists of many high-speed forward and lateral movements combined with decelerations from frequent sprints. Explosive vertical jumps can be performed up to 50 times per game (D'Elia et al., 2020). One of the factors related to performance in a match is mental endurance. The process of the appearance of an athlete is influenced by mental. Mental is the capital that must be owned by an athlete in reaching the top. Ideally, a basketball athlete must have optimal technical, physical, and mental abilities, so that athletes are able to achieve good performance. Performance or appearance is what is seen or what the player shows in a game or match. Performance is an action or appearance, action, or work that is achieved or carried out.

According to Smrdu (2015) after a good performance, athletes can feel satisfaction, and happiness, they are even more open to the surrounding environment, in the sense that they will have more sympathy for other athletes who have fought together. Performance can be influenced by psychological factors including self-confidence, motivation, and anxiety. Chang-Yong et al., (2012) studied dozens of elite athletes where there are several psychological sources for performance characterized by self-confidence and motivation.

Sources of confidence are influenced by mental, tactical, and physical preparation before competition while sources of motivation allow sports coaches to target the athlete's abilities. Competitive anxiety is an athlete's emotional reaction when feeling threatened which negatively affects behavior and performance during matches (Palazzolo, 2020). Athan & Sampson (2013) also explained that another factor that also affects the emergence of competition anxiety is the level of skill and experience. Athletes are able to reduce their anxiety with themselves, motivational encouragement from parents and coaches, and control anxiety well.

Smith et al., (1990) analyzed the factors of the anxiety scale The Sport Anxiety Scale (SAS), with the result that somatic anxiety, and two classes of cognitive anxiety namely, worry and concentration disorders can measure individual anxiety. Gould et al., (2002) stated that the characteristics of Olympic champion athletes are athletes who have the ability to overcome and

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control anxiety. Research by Mottaghi et al., (2013) and Bali (2015) shows that there is a significant negative relationship between anxiety and athlete performance.

The characteristics of competitive maturity are being able to overcome mental disorders such as anxiety, giving motivated advice, and solving problems with self-confidence. In general, anxiety is experienced by all basketball athletes when competing. Athletes feel fear because their opponent is better, worry about things around them like the audience, are nervous, and lose concentration. Another problem that occurs is the athlete's lack of confidence in his own abilities, even though the athlete is able to win the match but due to lack of confidence, the athlete cannot bring out all his abilities. The peak performance of athletes requires confidence because self-confidence has a significant correlation with increasing athlete performance. The higher the self-confidence, the athlete is able to achieve his best performance. High self-confidence supports peak performance, while low self-confidence will make athletes lead poor performances

Burton & Raedeke (2008) explain that motivated athletes will do sports for pleasure and enjoy the learning process to master a skill. In addition, the motivational aspect is also distinguished between motivation that comes from outside (extrinsic) and motivation that comes from within oneself (intrinsic). Good motivation does not base its encouragement on extrinsic factors such as gifts or rewards in the form of material, while to develop this intrinsic motivation, the role of coaches and parents is very large. Athletes must have a very strong motivation to form positive energy. The results of Cucui & Cucui (2014) research conclude that motivation is the key to achieving the best performance, performance in sports is influenced by the intensity of motivation, the higher the motivation, the more athletes will achieve their best performance.

Based on the previous description, it can be assumed that the psychological aspects between self-confidence, motivation, and anxiety above have no significant scientific evidence that these four aspects influence the performance of adolescent basketball athletes. The explanation above is certainly interesting to study and research more deeply, so this study aims to analyze the effect of self-confidence, motivation, and anxiety on the performance of basketball athletes.

METHOD

This type of research is descriptive quantitative with an ex post facto approach. Ex post facto is research that aims to find the causes that allow changes in behavior, symptoms or phenomena caused by an event, behavior or things that cause changes in the independent variables which as a whole have occurred. The population in this study were high school basketball athletes in Baubau City, totaling 119 people (68 male, 51 female). The subjects used were selected based on the characteristics of the sample in the study, namely (1) athletes who actively participate in training and tournaments, (2) athletes are adolescent athletes who attend high school level, and (3) often attend training for at least 1 year.

Competing performance instruments were adopted from (Cohn, 1991) with a validity value of 0.863 and a reliability of 0.953, self-confidence was adopted from (Amir, 2015) with a validity of 0.614 and a reliability of 0.87, motivation was adopted from (Pelletier et al., 1995) with a validity of 0.70 and reliability 0.85, and anxiety was adopted from (Smith et al., 1990) with validity 0.838 and reliability 0.74. The data analysis technique used is a prerequisite test which consists of a normality test, linearity test, and multicollinearity test, while hypothesis testing uses partial and simultaneous tests. Analysis was performed using SPSS 23.

FINDING

Analysis Prerequisites Test

The normality test of the data in this study used the Kolmogorov-Smirnov method. The results of the data normality test carried out in each group were analyzed using the SPSS version 20.0 software program for windows with a significance level of 5% or 0.05. The results of the normality test in this study showed a significance value of 0.314 which was greater than 0.05. Based on the statistical analysis of the normality test that has been carried out using the Kolmogorov-Smirnov test in Table 6, the variables of confidence, motivation, and anxiety on basketball athletes' competitive performance obtained normality test results with a significance value of $p > 0.05$, which means the data is normally distributed.

The heteroscedasticity test used was the Glejser test using SPSS 23. Based on the results of the analysis, it was found that the three variables showed no heteroscedasticity with significant values for each variable, namely self-confidence: 0.843; motivation: 0.921; anxiety: 0.491. All three show that there is no heteroscedasticity.

A Multicorrelarity test was conducted to determine whether there is multicollinearity between independent variables in the model. If the tolerance is more than 0.25 and the Variance Inflation Factor (VIF) is less than 10, it means that there is no multicollinearity. Based on the results of multicollinearity, it shows that the correlation between independent variables has a tolerance value of more than 0.25 and a VIF value of less than 10. So it can be concluded that the regression model meets the assumption test that there is no multicollinearity.

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Hypothesis testing

Furthermore, hypothesis analysis is performed, namely partial test and simultaneous test. The t-test (partial) was conducted to determine the effect of each independent variable, namely self-confidence, motivation, and anxiety on the performance of basketball athletes. The results of the t-test analysis (partial) are presented in Table 1 as follows.

Table 1. Results of Partial Test Analysis (t test)

Model		t	Sig.
1	Constant)		
	Confidence	4.481	0.000
	Motivation	3.708	0.000
	Anxiety	-7.415	0.000

Table 1 shows that the independent variable self-confidence has a t-count value of 4.481. This value is greater than the t table which is 1,660. Another criterion can be seen from the sig value on the confidence variable which is smaller than 0.05, which is 0.000. The decision taken from these criteria is that there is a positive influence of self-confidence on the competitive performance of high school basketball athletes in Baubau City. Based on these results indicating that $p < 0.05$ then H_0 is rejected, which means that there is an influence of confidence on the performance of high school basketball athletes in Baubau City, the first hypothesis is accepted.

Table 1 shows that the independent variable motivation has a t-count value of 3,708. This value is greater than the t table which is 1,660. Another criterion can be seen from the sig value on the motivation variable which is smaller than 0.05, namely 0.000. The decision taken from these criteria is that there is a positive influence of motivation on the competitive performance of high school basketball athletes in Baubau City. Based on these results indicating that $p < 0.05$ then H_0 is rejected, which means that there is an influence of motivation on the performance of high school basketball athletes in Baubau City, the second hypothesis is accepted.

Table 1 shows that the anxiety-free variable has a t-count value of -7.415. This value is smaller than the t table which is 1,660. Another criterion can be seen from the sig value on the anxiety variable which is smaller than 0.05, which is 0.000. The decision taken from these criteria is that there is a negative effect of anxiety on the competitive performance of high school basketball athletes in Baubau City. Based on these results, it shows that $p < 0.05$ then H_0 is rejected, which means that there is a relationship between anxiety to the competitive performance of high school basketball athletes in Baubau City, the third hypothesis is accepted.

The F test is used to test the hypothesis of whether the independent variables simultaneously (simultaneously) affect the dependent variable. H_4 reads "There is a joint influence of confidence, motivation, and anxiety on the competitive performance of high school basketball athletes in Baubau City". The results of the analysis are in Table 2.

Table 2. F Test Analysis Results (Simultaneous)

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7611.540	3	2537.180	61.081	0.000 ^a
	Residual	4361.505	105	41.538		
	Total	11973.046	108			
a. Predictors: (Constant). confidence, motivation, anxiety						
b. Dependent Variable: competitive performance						

Based on Table 2 above, the calculated F coefficient is 61.081, and the value of sig. $0.000 < 0.05$, then H_0 is rejected, meaning. The alternative hypothesis which reads "There is an effect of self-confidence, motivation, and anxiety together on the competitive performance of high school basketball athletes in Baubau City", is accepted.

The coefficient of determination is essentially used to measure how far the regression model's ability to explain the variation of the dependent variable is. The results of the analysis in Table 3 are as follows.

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Table. 3 The Result of the Coefficient of Determination

<i>Model Summary</i>				
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	0.797 ^a	0.636	0.625	6.445
<i>Predictors: (Constant), confidence, motivation, anxiety</i>				

The value of the coefficient of determination R Square or self-confidence, motivation, and anxiety together in explaining or predicting the variable performance of high school basketball athletes in Baubau City is 0.636 or 63.6%. This means that the variables of confidence, motivation, and anxiety have an influence on the performance of high school basketball athletes in Baubau City by 63.6%, while the rest is influenced by other factors 36.4% outside this study.

DISCUSSION

The effect of Confidence on Competing Performance

Based on the results of statistical tests that have been carried out, show that self-confidence has a positive influence on the competitive performance of high school basketball athletes in Baubau City. This means that the higher the level of self-confidence, the higher the level of competitive performance in athletes. If the athlete has good self-confidence, the athlete will have a good competitive performance as well. However, on the contrary, if the athlete does not have good self-confidence, it will affect the athlete's competitive performance.

This is also reinforced by the opinion of Plakona et al., (2014) which states that self-confidence is the foundation for athletes' competitive performance in competitions. Athletes who have optimal self-confidence are competent and ready. When athletes feel competent and ready, athletes will do well in the end and can achieve competitive performance. Confidence contributes by increasing performance can help athletes achieve peak performance (Machida et al., 2012). Based on the opinion above, self-confidence has a positive influence on competitive performance. Athletes who have self-confidence are able to display their abilities to the fullest and make self-confidence the main capital to achieve achievement, be a predictor of success in competitions, and improve athletes' competitive performance.

The Effect of Motivation on Competing Performance

The results of the study indicate that motivation has a positive influence on competitive performance in high school basketball athletes in Baubau City, which means athletes with high motivation will produce a highly competitive performance as well and vice versa. This is in line with Hatzigeorgiadis et al., (2008) which revealed that motivation has a positive impact on performance, increases self-confidence, and reduces cognitive anxiety. The study conducted by Singh & Pathak (2017) also added that intrinsically motivated athletes strive to master skills and encourage them to complete their tasks well. Optimal levels of motivation are very important to improve performance, meaning that motivation has a tremendous impact on athlete performance.

In line with the opinion of Subarjah et al., (2019) revealed that motivation has a positive influence on the performance of badminton athletes. The results of another study by Cucui & Cucui (2014) concluded that motivation is the key to achieving the best performance, performance in sports is influenced by the intensity of motivation, the higher the motivation, the more athletes will achieve their best performance. Based on the explanation above, it can be concluded that motivation has a positive influence on athletes' competitive performance. When the athlete's motivation is high, the athlete's competitive performance is high and vice versa if the athlete's motivation level is low, the competitive performance cannot be achieved.

The Effect of Anxiety on Competitive Performance

Based on the results of the analysis showed that anxiety has a negative effect on competitive performance. The result of this study is that there is a negative relationship between anxiety to competitive performance in high school basketball athletes in Baubau City. That is, the lower the level of anxiety, the higher the athlete's performance when competing, and vice versa, the higher the anxiety, the athlete's performance will decrease. This is in line with Mylsidayu (2022) who states that anxiety can have a considerable influence on appearance. Anxiety is synonymous with negative feelings, so self-control is needed to keep up with everything that happens; lack of self-control can cause uncontrollable anxiety that will interfere with activities and harm athletes. Anxiety is a situational reaction to various stressful stimuli. Anxiety is caused by feelings of fear, worry, and excessive tension. Athletes with high anxiety cause cannot bring out their abilities because of fear of the opponent they are facing, worry, and excessive tension before the match. Athletes must be able to control their anxiety levels as well as possible to achieve performance during matches (Jannah et al., 2019).

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The results of this study are in line with Khan et al., (2017) concluded that anxiety negatively affects athlete performance. Another study conducted by Sanioglu et al., (2017) examined the effect of anxiety on the success of individual athletes. Researchers explain that many athletes cannot show their best performance in training sessions or competitions that are full of pressure; this is due to the level of anxiety of the athletes. Anxiety experienced by athletes before and during the game causes the athlete's performance to be not optimal. In addition, research by Parnabas et al., (2015) illustrates that high-level cognitive anxiety during competition is very dangerous; it can worsen performance and even cause failure. Based on the results of research and existing theories, it is found that there is a negative influence of anxiety on athletes' competitive performance with these results show that the lower the athlete's anxiety level, the higher the performance competing in the match.

The Effect of Confidence, Motivation, and Anxiety on Competing Performance

The test results obtained the calculated F value of 61,081 with a significance of 0.000. Therefore, the significant value is less than 0.05 ($0.000 < 0.05$), and it can be concluded that the fourth hypothesis, which states that there is a joint influence between self-confidence, motivation, and anxiety with the performance of high school basketball athletes in Baubau City, then the hypothesis is accepted. The disclosure of performance in sports is influenced by low levels of anxiety and high motivation. Self-confidence, motivation, and anxiety influence improving performance; when self-confidence is high, anxiety is low, and when the athlete has optimal self-confidence, the athlete has an intrinsic motivation to develop the game and achieve success. Based on the explanation above, it can be concluded that there is a joint influence between self-confidence, motivation, and anxiety on competitive performance. The higher the self-confidence and motivation, as well as the lower anxiety, the more competitive performance, can be achieved.

CONCLUSION

Based on the results of the analysis, it can be concluded that; (1) there is a positive effect of self-confidence on competitive performance in high school basketball athletes in Baubau City. (2) there is a positive effect of motivation on competitive performance in high school basketball athletes in Baubau City. (3) there is a negative effect of anxiety on competitive performance in high school basketball athletes in Baubau City. (4) There is an effect of self-confidence, motivation, and anxiety on competitive performance in high school basketball athletes in Baubau City.

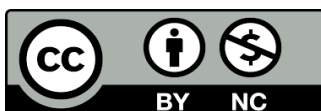
Further researchers interested in the same background and problems endeavor to examine this problem with a broader range and by adding other variables that have not been revealed in this study. It is necessary to control the sample under study because, in this study, there are still many shortcomings, so it is essential to develop and improve this research.

REFERENCES

- 1) Amir, N. (2015). Instrument Development of Self-Confidence for Badminton Athletes. *ANIMA Indonesian Psychological Journal*, 30(2), 101–110.
- 2) Athan, A. N., & Sampson, U. I. (2013). Coping with pre-competitive anxiety in sports competition. *European Journal of Natural and Applied Sciences*, 1(1), 1–9.
- 3) Bali, A. (2015). Psychological factors affecting sports performance. *International Journal of Physical Education, Sports and Health*, 1(6), 92–95.
- 4) Burton, D., & Raedeke, T. D. (2008). *Sport psychology for coaches*. Human Kinetics.
- 5) Chang-Yong, C., Chen, I.-T., Chen, L.-C., Huang, C.-J., & Hung, T.-M. (2012). Sources of psychological states related to peak performance in elite table tennis players. *International Journal of Table Tennis Sciences*, 7, 86–90.
- 6) Cohn, P. J. (1991). An exploratory study on peak performance in golf. *The Sport Psychologist*, 5(1), 1–14.
- 7) Cucui, I. A., & Cucui, G. G. (2014). Motivation and its implications in sports performance (Note I). *Palestrica of the Third Millennium Civilization & Sport*, 15(1).
- 8) D'Elia, F., Rago, V., Ermidis, G., & Raiola, G. (2020). Relationship between lower limb asymmetries and functional capacities in women in Basketball: A case study. *Sport Science*, 13(1), 90–95.
- 9) Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14(3), 172–204.
- 10) Hatzigeorgiadis, A., Zourbanos, N., Goltsios, C., & Theodorakis, Y. (2008). Investigating the functions of self-talk: The effects of motivational self-talk on self-efficacy and performance in young tennis players. *The Sport Psychologist*, 22(4), 458–471.
- 11) Jannah, M., Widohardhono, R., Fatimah, F., Dewi, D. K., & Umanailo, M. C. B. (2019). Managing cognitive anxiety through expressive writing in student-athletes. *International Journal of Scientific and Technology Research*, 8(10), 1615–1618.

Confidence, Motivation, and Anxiety; Does it Affect the Performance of Basketball Athletes?

- 12) Khan, M. K., Khan, A., Khan, S. U., & Khan, S. (2017). Effects of anxiety on athletic performance. *Res Inves Sports Med*, 1(1), 1–5.
- 13) Machida, M., Marie Ward, R., & Vealey, R. S. (2012). Predictors of sources of self-confidence in collegiate athletes. *International Journal of Sport and Exercise Psychology*, 10(3), 172–185.
- 14) Mottaghi, M., Atarodi, A., & Rohani, Z. (2013). The relationship between coaches' and athletes' competitive anxiety, and their performance. *Iranian Journal of Psychiatry and Behavioral Sciences*, 7(2), 68.
- 15) Mylsidayu, A. (2022). *Psikologi olahraga*. Bumi Aksara.
- 16) Omi, Y., Sugimoto, D., Kuriyama, S., Kurihara, T., Miyamoto, K., Yun, S., Kawashima, T., & Hirose, N. (2018). Effect of hip-focused injury prevention training for anterior cruciate ligament injury reduction in female basketball players: a 12-year prospective intervention study. *The American Journal of Sports Medicine*, 46(4), 852–861.
- 17) Palazzolo, J. (2020). Anxiety and performance. *L'encephale*, 46(2), 158–161.
- 18) Parnabas, V., Parnabas, J., & Parnabas, A. M. (2015). The Deteriorate Function of Cognitive Anxiety on Sepak Takraw Athletes. *The International Journal of Indian Psychology*, 2, 33–39.
- 19) Pelletier, L. G., Tuson, K. M., Fortier, M. S., Vallerand, R. J., Briere, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport and Exercise Psychology*, 17(1), 35–53.
- 20) Plakona, E., Parčina, I., Ludvig, A., & Tuzović, A. (2014). Self-confidence in sport. *Sport Science*, 7(1), 45–47.
- 21) SANIOGLU, A., ULKER, M., & TANIS, Z. S. (2017). The effect of trait anxiety on success in individual athletes. *Turkish Journal of Sport and Exercise*, 19(2), 289–295.
- 22) Singh, D., & Pathak, M. K. (2017). Role of motivation and its impact on the performance of a sports person. *International Journal of Physical Education, Sports and Health*, 4(4), 340–342.
- 23) Smith, R. E., Smoll, F. L., & Schutz, R. W. (1990). Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. *Anxiety Research*, 2(4), 263–280.
- 24) Smrdu, M. (2015). First-person experience of optimal sport competition performance of elite team athletes. *Kinesiology*, 47(2.), 169–178.
- 25) Subarjah, H., Gilang, P. P., Sandey, T. P., & Amanda, P. S. (2019). The Effect of Training Motivation and Emotional Intelligence on the Performance of Badminton Players. *International Conference on Education, Science and Technology*, 345–352.



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Valuation of Stocks with Price Earning Ratio and Factors Affecting them on the Indonesia Stock Exchange (Basic Materials Sector Company Indexed LQ 45)



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ABSTRACT: This research is about the valuation of stocks with a Price Earning Ratio in basic materials sector companies indexed by LQ 45 listed on the Indonesia Stock Exchange. In addition, this research is also an effort to identify the determining factors of the Price Earning Ratio, because the Price Earning Ratio Assessment has always been the center of attention of investors and market analysts. The samples used in this study were 9 companies using the non probability sampling method, namely Purposive Sampling with an observation period from 2017-2021. Data processing is carried out with the Eviews 12 program with stages of processing (1) descriptive statistics that describe the data used, (2) Panel regression models and the selection of the best models through the Chow, Hausman and Test tests, Lagrange Multiplier test models to produce the best model, (3) Selected models are carried out Classical Assumption Tests with the aim of Based on the selected model, the Radom effect model shows that: return on assets, debt to equity ratio, current ratio simultaneously has a positive and significant effect on the Price Earning Ratio. In partial Return on Asset, the Price Earning Ratio has a positive and significant effect. Meanwhile, the debt equity ratio and Current Ratio to the Price Earning Ratio have a negative and significant effect.

KEYWORDS: Price Earning Ratio, Return On Assets, Debt To Equity Ratio, Current Ratio, in basic materials sector companies indexed by LQ 45

I. INTRODUCTION

Price Earning Ratio is one of the indicators of market confidence in the company's growth prospects so that many capital market players pay attention to the performance of the Price Earning Ratio. Price Earning Ratio for analysts and investors helps in stock valuation and improves judgement because the current stock price is a mirror of the company's future prospects. And according to Halil Arslan *et al.*, (2017) investors use the Price earning Ratio as an indicator of a company's stock valuation because the calculation is practical and easy to understand.

By knowing the market price and net profit per share, investors can calculate what the Price Earning Ratio of a company's shares is. A high Price Earning Ratio can indicate investors' interest and interest in the stock and the company is considered to have a bright prospect in the future. In addition, the reason why the price earning ratio is used in stock price analysis is because the Price Earning Ratio will facilitate and help analysts and investors in stock valuation, and the Price Earning Ratio can also help analysts to improve judgement because the current stock price is a mirror of the company's prospects in the future.

The amount of the Price Earning Ratio follows price changes in the market and the company's projected net profit. If the price rises, the projected profit remains, practically the Price Earning Ratio will rise. Conversely, if the projected profit rises, the price in the market remains then the Price Earning Ratio will fall.

The following Price Earning Ratio of nine Companies The basic materials sector incorporated in LQ45 is presented in table form as follows:

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Table 1. Price Earning Ratio 2017 – 2021

9 Basic materials sector companies incorporated in LQ45

No	Company	Year			Average
		2019	2020	2021	
1	Aneka Tambang Tbk.	103.96	40.41	25.99	56,79
2	Barito Pacific Tbk.	219.16	200.73	41.23	153,71
3	Vale Indonesia Tbk.	45.16	43.22	32.64	40,34
4	Beautiful Tips Pulp & Paper Tbk.	1.10	13.82	5.70	6,87
5	Indocement Tunggal Prakarsa Tbk.	38.35	29.65	23.77	30,59
6	Medco Energy International Tbk.	28.78	5.56	13.72	16,02
7	Semen Indonesia (Persero) Tbk.	29.60	26.25	19.56	25,14
8	Tin Tbk.	9.99	32.26	10.05	17,43
9	Tjiwi Kimia Paper Mill Tbk.	13.76	14.59	5.92	11,423
	Average	55.54	45.17	19.84	40.18

Source: Indonesia stock exchange

Table 1 above shows the average Price Earning Ratio of each company over a period of 5 years (2017-2021). The highest average Price Earning Ratio is Barito Pacific Tbk (BRTP), while the lowest is Indah Kiat Pulp & Paper Tbk (INKP). This shows that Barito Pacific Tbk (BRTP) company has bright prospects compared to 8 other companies. In addition, the Price Earning Ratio value which is below the average of the 9 companies that are the object of research are Indah Kiat Pulp & Paper Tbk (INKP), Medco Energi Internasional Tbk (MEDC), Semen Indonesia (Persero) Tbk (SMGR), Timah Tbk (TINS) and Tjiwi Kimia Paper Mill Tbk (TKIM). According to Sherman (2015), the Price Earning Ratio can be used for investors to see if a company's stock can be said to be expensive/ cheap, because the value of the Price Earning Ratio can determine the value of a company's shares overprice or underprice. Several researchers have conducted research on the factors that influence the Price Earning Ratio including: Afza and Tahir (2012) for Karachi stock exchange, Ahmad A. Fesokh, Fayez S. Haddad (2019) for Manufacturing Industry in Jordan, Dr Ochuko Benedict Emudainohwo (2017) for 47 non-financial companies listed on the Nigerian Stock Exchange, Halil Arslan et al (2017) for the Turkish Stock Market, Kumar Debasis Dutta et al (2018) for DSE Listed Manufacturing Company, Aang Aribawa et al (2018), for companies Listed in Indonesian Stock Exchange, Natalia Popa Antalovschi and Raymond A. K. Cox (2021) in Canada.

Seeing the importance of Price Earning Ratio in a company that has been registered in the capital market, it is necessary to know the factors that affect the amount of Price Earning Ratio. The amount of value of a company's Price Earning Ratio can be influenced by the Return On Equity Ratio.

Return on equity is a ratio to measure how much profit the owner of his own capital is entitled to. The higher the return on equity, the better the condition of the company and furthermore, the greater the company's stock price. To see the picture of Return On Equity from the 9 companies that are the object of research are as follows:

Table 2. Return on Equity 2017 – 2021

9 Basic Materials Sector Companies incorporated in LQ45

NO	CODE	ROE OF the Year			Average
		2019	2020	2021	
1	Aneka Tambang Tbk.	1.74	6.04	10.98	6.25
2	Barito Pacific Tbk.	1.60	1.23	3.13	1.99
3	Vale Indonesia Tbk.	2.96	4.10	7.70	4.92
4	Beautiful Tips Pulp & Paper Tbk.	6.85	6.92	11.05	8.27
5	Indocement Tunggal Prakarsa Tbk	7.95	8.15	7.37	7.82
6	Medco Energy International Tbk.	- 2.88	-15.55	5.99	-4.15
7	Semen Indonesia (Persero) Tbk.	7.06	7.83	5.08	6.66
8	Tin Tbk.	-11.62	- 6.89	20.65	0.71
9	Tjiwi Kimia Paper Mill Tbk.	12.02	9.81	13.57	11.8
	Average	2.85	2.40	9.50	4.92

Source: Indonesia stock exchange

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Based on Table 2 above, it can be seen that the average of the last 5 years Return On Equity from 9 companies, the highest is Tjiwi Kimia Tbk Paper Mill (TKIM) and the lowest is Medco Energi Internasional Tbk (MEDC). Meanwhile, the average Return On Equity of 9 companies for the last 3 years is 6.25. From the table above, it can be seen that there are 4 companies whose Return On Equity value is below the average. This shows that the profits that belong to investors are still low, which means the company's low ability to manage equity to get maximum profit. Several researchers discussed the effect of Return On Equity on Price Earning Ratio including H.Wenjing (2017) stated that Return On Equity is negatively related to Price Earning Ratio, which means that an increase in Return On Equity decreases the value of the Price Earning Ratio.

In addition to Return On Equity, another factor that affects the Price Earning Ratio is the Debt to Equity Ratio in Gendro Wiyono's research, Nurul Indah Safitri (2021). Debt to Equity Ratio is the ratio used to assess debt to equity (Kasmir, 2014). While Brigham & Houston (2007) stated that the value of the Debt To Equity Ratio can describe the capital structure of the company through loans provided to companies. To see the Debt Equity Ratio overview of the 9 companies used as the object of study is as follows:

Table 3. Debt to Equity Ratio 2017 – 2021
9 Basic materials sector companies incorporated in LQ45

No	Company	Year			Average
		2019	2020	2021	
1	Aneka Tambang Tbk.	0.67	0.67	0.62	0.65
2	Barito Pacific Tbk.	1.61	1.60	1.08	1.43
3	Vale Indonesia Tbk.	0.14	0.15	0.15	0.15
4	Beautiful Tips Pulp & Paper Tbk.	1.12	1.00	0.85	0.99
5	Indocement Tunggal Prakarsa Tbk.	0.20	0.23	0.22	0.22
6	Medco Energy International Tbk.	3.46	3.86	3.24	3.52
7	Semen Indonesia (Persero) Tbk.	1.35	1.19	0.92	1.15
8	Tin Tbk.	2.87	1.94	1.33	2.06
9	Tjiwi Kimia Paper Mill Tbk.	1.21	1.03	0.84	1.03
	Average	1.40	1.30	1.03	1.24

Source: Indonesia stock exchange

Table 3 illustrates the company's ability to meet all of its debts/liabilities using all of its assets. The highest average Debt Equity Ratio in the last 3 years of the 9 companies that are the object of research is Medco Energi Internasional Tbk. This illustrates that the company's debts/liabilities are greater than all the assets it owns, so that in undesirable conditions (for example bankruptcy), the company will find it difficult to pay off all its debts/liabilities. Meanwhile, the lowest debt equity ratio is Indocement Tunggal Prakarsa Tbk. The results of research from several researchers on Debt Equity Ratio can affect the Price Earning Ratio including Dedeh Sri Sudaryantia and Nana Sahron (2016), Cecep Ridwan et al (2019) which stated that there was no significant relationship. While Frengky David Sijabat and Anak Agung Gede Suarjaya (2018), Rita Purnama Sari et al (2021), Gendro Wiyono and Nurul Indah Safitri (2021) stated different things.

Another factor that can affect the Price Earning Ratio is the Current Ratio. Current Ratio is a ratio that measures a company's ability to meet short-term obligations that are about to mature (Brigham and Haouston, 2014). The company's ability to meet its high-term obligations shows that the company's Current Ratio is high. To see the current ratio of 9 companies studied, you can see from the following table:

Table 4. Current Ratio 2017 – 2021
9 Basic materials sector companies incorporated in LQ45

No	Company	Year			Average
		2019	2020	2021	
1	Aneka Tambang Tbk.	1.67	1.67	1.60	1.65
2	Barito Pacific Tbk.	2.61	2.61	2.08	2.43
3	Vale Indonesia Tbk.	1.14	1.14	1.15	1.14

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4	Beautiful Tips Pulp & Paper Tbk.	2.12	2.00	1.83	1.98
5	Indocement Tunggal Prakarsa Tbk.	1.20	1.23	1.20	1.21
6	Medco Energy International Tbk.	4.46	4.87	4.22	4.52
7	Semen Indonesia (Persero) Tbk.	2.35	2.18	1.92	2.15
8	Tin Tbk.	3.85	2.96	2.33	3.05
9	Tjiwi Kimia Paper Mill Tbk.	2.21	2.03	1.82	2.02
	Average	2.40	2.30	2.02	2.24

Source: Indonesia stock exchange

The picture of table 4 above, the Current Ratio of 9 companies above shows that the last 3 years the average current ratio of companies that are below 2.0 is 4 companies. This shows that the company's current asset ability to meet short-term obligations when billed is low. While the other 5 companies are above 2.0. The company whose current asset capability is high is Medco Energi Internasional Tbk. The higher the current ratio means that the company's debt is guaranteed to creditors and the increasing current ratio of the company is likely to increase the company's share price which will affect PER. This is due to the increasing public trust in companies that have a high Current Ratio. Some research researchers who discuss the effect of Current Ratio on Price Earning Ratio include Siti Aisyah and Ahmad Rodoni (2016) and Djiwangga Adie Prakoso and Jusmi Amid (2018),

II. LITERATURE REVIEW

Price Earning Ratio, one of the indicators that investors most often use to analyze whether the investments made are profitable or not. In addition, the Price Earning Ratio is also useful for knowing when is the right time to buy and sell shares owned in order to get the maximum profit from the difference in price (capital gains). According to Sumarni et al (2022) Price Earning Ratio is useful in knowing how the market assesses the performance of stocks described in earnings per share and . Afza and Tahir (2012) state that the Price Earning Ratio can help investors see a picture of the company's future. According to Harahap (2011), the Price Earning Ratio is a comparison between the price of a stock in the market and the original price given in relation to the income earned. A high PER indicates that investors' aspirations about the company's potential success are very high. The same thing is also according to Mohd. Nawi Purba *et al.*, (2022) that a high Price Earning Ratio means high investor confidence to invest in the company.

Return on Equity, is a ratio used to measure a company's ability to obtain profits available to company shareholders (Sartono, 2015). And Kasmir (2014), stated to measure the ability of bank management in managing existing capital to get net income. The higher the Return On Equity value of a company indicates the higher the management of the company's capital in getting a return on its capital. This is strengthened by the results of research Emudainohwo (2016) namely good company performance will attract investors.

Debt to Equity Ratio, according to Tjiptono & Hendi (2016) is used to measure the extent to which the amount of debt can be covered by own capital. Meanwhile, Ashari (2018) said to find out the company's ability to pay obligations if the company is liquidated and Ang (2010) stated that the higher Debt to equity ratio reflects the company's risk is also relatively high, so with these conditions investors tend to avoid stocks that have a high Debt to equity ratio (DER). This is in line with the opinion of Ahmad A. Fesokh and Fayez S. Haddad (2019), where excessive leverage from the investor's point of view increases financial risk. Meanwhile, Dedeh Sri Sudaryantia and Nana Sahroni (2016) stated that the use of debt will increase the rate of return for shareholders. In addition, research by Hirdinis M (2019) states that DER will increase in company value as long as DER has not reached the optimum point in accordance with the tradeoff theory.

Current Ratio, used to evaluate the company's liquidity and the ability to repay short-term debt. Yemima (2012) states that the Current Ratio can reflect a company's ability to pay all its financial obligations. The higher current ratio of a company gives a good indication of guarantees for short-term creditors which means the company has the ability to pay off its short-term financial obligations. And according to Jumingan (2011), a high current ratio indicates excessive cash compared to the level of need. Thus, it can be concluded that a current ratio that is too high is also not good in a company due to the large amount of funds that are idle / used.

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III. RESEARCH METHODOLOGY

The data in this study is the financial ratio of basic materials subsector companies included in the LQ45 index on the Indonesia Stock Exchange in 2017 – 2021. Companies that are used as the object of research for companies in the basic materials subsector are based on the following criteria:

1. Company shares that are included in the LQ-45 calculation throughout the research period, namely the period 2017 - 2021.
2. The company has complete financial data on the financial statements ended December 31 during the observation period, namely the period 2017 – 2021.

From these criteria, 9 companies were obtained into research projects as shown in the following table:

Table 5. Research Sample List

No	Stock Code	Company Name
1	ANTM	Aneka Tambang Tbk.
2	BRPT	Barito Pacific Tbk.
3	INCO	Vale Indonesia Tbk.
4	INKP	Beautiful Tips Pulp & Paper Tbk.
5	INTP	Indocement Tunggul Prakarsa Tbk.
6	MEDC	Medco Energy International Tbk.
7	SMGR	Semen Indonesia (Persero) Tbk.
8	TINS	Tin Tbk.
9	TKIM	Tjiwi Kimia Paper Mill Tbk.

Source: www.idx.co.id (data processed)

The data used is panel data which is a combination of time series and cross section data to measure the effect of Return On Equity, Debt to Equity Ratio, and Current Ratio on the Price Earning Ratio of basic materials subsector companies in the LQ45 index listed on the Indonesia Stock Exchange both simultaneously and partially. In order to achieve the research objectives, data analysis in this study will be carried out through an econometric model with the help of the Eviews program with its stages: descriptive statistics (mean), standard deviation, maximum value, and minimum value), Classical Assumption Test (Normality test, Multicollinearity, Heteroskedasticity and Autocorrelation) and regression.

Panel data regression provides a choice of models in the form of common effect, fixed effect and random effect. The common effect and fixed effect models use the Ordinary Least Squared (OLS) approach while the random effect uses Generalized Least Squares (GLS). To get the best model is done with the Chow test, the Hausman test and the Lagrange Multiplier Test.

The panel model can be formulated as follows:

$$Y = \beta_0 + \beta_1itX1it + \beta_2itX2it + \beta_3itX3it + eit$$

Where:

Y = Price Earning Ratio

X1 = Return On Equity

X2 = Debt On Equity Ratio

X3 = Current Ratio

$\beta_0, \beta_1it, \beta_2it, \beta_3it$ = Regression Coefficient

eit = error/epsilon

The hypotheses in this study are:

1. Return On Equity, Debt to Equity Ratio, and Current Ratio have a positive and significant effect on the Price Earning Ratio of basic materials subsector companies in the LQ45 index listed on the Indonesia Stock Exchange
2. Return On Equity has a positive and significant effect on the Price Earning Ratio of basic materials subsector companies in the LQ45 index listed on the Indonesia Stock Exchange.

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- Debt to Equity has a positive and significant effect on the Price Earning Ratio of basic materials subsector companies in the LQ45 index listed on the Indonesia Stock Exchange.
- Current Ratio has a positive and significant effect on the Price Earning Ratio of basic materials subsector companies in the LQ45 index listed on the Indonesia Stock Exchange.

IV. RESEARCH RESULTS AND DISCUSSION

1. Descriptive Analysis

Descriptive analysis only describes the sample data and the sample picture is the maximum, minimum value, mean value, and standard deviation which shows how much the sample value differs from the average.

Table 5. Descriptive Analysis Results

Date: 06/11/22 Time: 14:12 Sample: 2017 2021				
	LOGROE	LOGDER	LOGCR	LOGPER
Mean	1.747556	-0.199111	0.695111	3.188444
Median	1.930000	0.000000	0.690000	3.260000
Maximum	3.030000	1.350000	1.580000	5.390000
Minimum	-0.300000	-1.970000	0.130000	1.670000
Std. Dev.	0.791550	0.942250	0.397444	0.918949
Skewness	-0.780377	-0.491998	0.362078	0.429740
Kurtosis	3.132793	2.288681	2.499721	2.886302
Jarque-Bera	4.600475	2.764165	1.452524	1.409315
Probability	0.100235	0.251055	0.483714	0.494278
Sum	78.64000	-8.960000	31.28000	143.4800
Sum Sq. Dev.	27.56823	39.06476	6.950324	37.15659
Observations	45	45	45	45

Source: processed reviews version 12

The table above can explain that the Return On Equity (ROE), Current Ratio (CR) and Price Earning Ratio (PER) have a Mean value greater than the standard deviation and this shows that the average variable is fully capable of explaining the entire data or data is not diverse. While the Variable Debt Equity Ratio (DER) has a mean of -0.20% and a standard deviation of 0.94% which means that the mean is smaller than the standard deviation which indicates that the average DER variable is less able to explain the entire data due to the diverse data.

The results of panel regression in this study can be shown in the following table:

Table 6. Panel Regression

Variable	Common Effect Model			Fixed Effect Model			Random Effect Model		
	Coeff	t- Statistics	Prob.	Coeff	t- Statistics	Prob.	Coeff	t- Statistics	Prob.
Log ROE	4.6641	23.7950	23.7950	4.5463	27.6706	0.0000	0.3156	2.6355	0.0118
Log DER	-0.9443	-10.6307	-10.6307	-0.8536	-9.8887	0.0000	-0.2422	-2.0019	0.0419
Log CR	-0.33033	-3.9602	-3.9602	0.2060	0.86918	0.3911	-0.9071	-11.3944	0.0000
C	0.2579	1.9471	1.9471	0.2928	2.2949	0.0282	4.5756	23.4326	0.0000
R-squared	0.7871			0.9040			0.7536		
Adjusted R-squared	0.7715			0.8720			0.73545		
F-statistics	50.5152			28.2521			41.7710		
Prob(F-statistic)	0.0000			0.0000			0.0000		

Source: Processed

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Based on the Chow Test, Hausman Test and Lagrange Multiplier Test, the best (selected) model is the Random Effect Model. The selected regression model (Random Effect Model) has passed the classical assumption testing of normality, heteroskedasity and autocorrelation.

Multiple linear regression analysis that aims to measure the strength of the relationship between two or more variables and show the direction of the relationship between bound variables and free variables. From table 6 above, the multiple linear regression equation is obtained as follows:

$$\text{Log Y} = \beta_0 + \beta_{1it} \text{Log X}_{1it} + \beta_{2it} \text{log X}_{2it} + \beta_{3it} \text{Log X}_{3it} + e_{it}$$
$$\text{Log Y} = 4.575616 + 0.315612 \text{Log ROE} - 0.242222 \text{Log DER} - 0.907172 \text{Log CR}$$

The regression equation above illustrates:

1. The value of the constant coefficient is 4.575616, meaning that if the variable Return On Equity (ROE), variable Debt Equity Ratio (DER), variable Curent Ratio (CR), variable is considered constant then the Price Eraning Ratio (PER) is 4.575616 and the influence that occurs is positive and significant which is characterized by a probability value (0.0118) smaller than $\alpha = 0.05$.
2. The value of the Return On Equity (ROE) coefficient is 0.315612, meaning that an increase in ROE(X1) of 1 unit will result in an increase in the Price Eraning Ratio (PER) of 0.315612 or 31.56% assuming other variables are fixed. The increase in Price Eraning Ratio (PER) by Return On Equity (ROE) is very small, because it is below 50%, while the form of influence that occurs is positive and significant (prob 0.0118 < $\alpha = 0.05$).
3. The value of the Debt Equity Ratio (DER) coefficient is -0.242222, meaning that if the Debt Equity Ratio (DER) increases by one unit, the Price Eraning Ratio (PER) will decrease by 0.242222 (24%) assuming other variables are fixed. The effect of Debt Equity Ratio (DER) on Price Eraning Ratio (PER) is negative and significant (prob. 0.000 < $\alpha = 0.05$).
4. The value of the Curent Ratio (CR) coefficient, - 0.907172, means that if the Curent Ratio (CR) increases by one unit then the Price Eraning Ratio (PER) will decrease by 0.907172 (91%), assuming other variables remain. The effect of Curent Ratio (CR), on Price Eraning Ratio (PER) is negative and significant (prob. 0.0419 < $\alpha = 0.05$).

The results of the F test can be seen from the F-statistical probability value < the significance value of $\alpha = 5\%$ (0.0000 < 0.05). This shows that there is a significant influence of independent variables (ROE, DER, CR) on the dependent variable (PER) simultaneously. The coefficient of determination of the above model is 0.73545 or 74%. The value of this Coefficient of determination can explain that independent variables (ROE, DER, CR) affect the dependent variable (PER) by 74% and the remaining 26% are influenced by other variables that are not contained in this study.

V. CONCLUSION

Fund managers, decision makers, market analysts and individual investors need to understand the factors influencing the Price Earning Ratio as it is crucial to making investment decisions. The panel's data findings show that the variation in Return On Equity, Debt Equity Ratio and Current Ratio to Price Earning Ratio is quite large. Another finding in the study is that the Return On Equity with a significant and positive Price Earning Ratio means that the profit and the effectiveness of the use of company assets affect the valuation of the price earning ratio and the company is worthy of being used as an investment place. The Debt to Equity Ratio and Price Earning Ratio are negative and significant. This shows that this relationship is consistent with the theory, where a high Debt Equity Ratio indicates that the company has high risk and causes investors to be afraid to invest in the company. The relationship between the variables Current Ratio and Price Earning Ratio is the largest, where the relationship is negative and significant. This negative relationship shows the large amount of funds in the company or shows that operational activities are not running well and ultimately have an impact on the Price Earning Ratio.

These findings can facilitate market analysts and researchers to investigate the most significant determinants of a company's Price Earning Ratio and also help investors make decisions about their investment portfolio and for companies to look for strategies to increase the value of PER.

REFERENCES

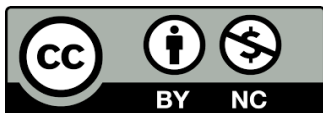
- 1) Afza, T. and Tahir, S., (2012) , Determinants of Price-Earning ratio: The case of chemical sector of Pakistan. International Journal of Academic Research in Business and Social Sciences, Vol. 2, No. 8. P. 331-343.
- 2) Ahmad A. Fesokh ,and Fayez S. Haddad (2019), Determinants of Price Earnings Ratio in Manufacturing Industry in Jordan, Jordan Journal of Business Administration, Volume 15, No. 2, p. 227-236.

Valuation of Stocks with Price Earning Ratio and Factors Affecting them on the Indonesia Stock Exchange (Basic Materials Sector Company Indexed Lq 45)

- 3) Aang Aribawa, Budi Sutrisno, Adhipradana Prabu Swasito (2018), Determinant of Price Earning Ratio in the Property and Real Estate Company: Case Study Listed in Indonesian Stock Exchange 2011-2018, *Journal of Accounting, Finance and Auditing Studies* 6/1, p. 119-130.
- 4) Ang, R. (2010). *Smart Book of Indonesian Capital Market*. Jakarta: Media Soft Indonesia.
- 5) Ashari, D. (2018). Practical guidelines for understanding financial statements." *Managerial Finance*,. doi:10.1108/MF-08-2017-0303.
- 6) Brigham, & Houston. (2007). *Fundamentals of Financial Management*. Jakarta: Salemba Empat.
- 7) Brigham and Houston. 2014. *Basics – Basics of Financial Management*. (eleventh ed.). Tr. Ali. Jakarta. Salemba Four.
- 8) Cecep Ridwan, Astrid Dita Meirina Hakim and Aris Wahyu Kuncoro (2019), The Effect of Debt To Equity Ratio, Return On Equity, Earning Per Share And Dividend Payout Ratio On Price Earning Ratio (Empirical Study On Chemical Sub-Sector Manufacturing Companies Listed On The Indonesia Stock Exchange For The Period 2013-2017), *Journal Of Economics and Management* Vol. 8 No. 2, p. 139-162.
- 9) Dedeh Sri Sudaryantia and Nana Sahroni (2016), The Effect Of Return On Equity (Roe) And Debt To Equity Ratio (Der) On Price Earning Ratio (Per) (Empirical Study On Pt. Holcim Indonesia Tbk.), *Journal Of Management Economics* Volume 2 Number 1, p. 40-47.
- 10) Djiwangga Adie Prakoso and Jusmi Amid (2018), The Analysis Of The Effect Of Current Ratio (Cr), Return On Equity (Roe), Dividend Payout Ratio (Dpr), And Debt To Equity Ratio (Der) Toward Price Earning Ratio (Per) At Manufacturing Companies In Jakarta Islamic Index (Jii) Period 2011 – 2017, *Journal Of Islamic Economics and Banking* Vol 8 , Number 2, p. 1-15.
- 11) Emudainohwo O.B. & Tarurhor M.E. (2016). Accounting Information Impacts on Market Value of Equity: Nigeria Experience. *Ambrose Alli University (AAU) Journal of Management Sciences*.7(2): 70–82.
- 12) Frengky David Sijabat and Anak Agung Gede Suarjaya (2018), The Effect of Dividend Payout Ratio, Debt To Equity Ratio, Return On Asset And Return On Equity On Price Earning Ratio In Manufacturing Companies, *E-Journal of Management Unud*, Vol. 7, No. 4, p. 1-27.
- 13) Gendro Wiyono, Nurul Indah Safitri (2021), Factors Affecting Price Earning Ratio As One Of The Decision Criteria For Manufacturing Company Shares Investment In Indonesia Stock Exchange (2013-2018 Period), *International Journal of Economics, Bussiness and Accounting Research (IJE BAR)*, vol. 5 issue 1, p. 302-3011.
- 14) Cashmere. (2014). *Financial Statement Analysis*, 7th printing. Jakarta: PT Raja Grafindo Persada.
- 15) Kumar Debasis Dutta, Mallika Saha, Burned Chandra Das (2018), Determinants of P/E Ratio: An Empirical Study on Listed Manufacturing Companies in DSE, *International Journal of Scientific and Research Publications*, Volume 8, Issue 4, p. 167-174.
- 16) Kumar Debasis Dutta, Mallika Saha, Burned Chandra Das (2018), Determinants of P/E Ratio: An Empirical Study on Listed Manufacturing Companies in DSE, *International Journal of Scientific and Research Publications*, Volume 8, Issue 4, p. 167-174.
- 17) Harahap, S. (2011). *Critical Analysis of Financial statements*. First Edition. Jakarta: PT Bumi Aksara.
- 18) Halil Arslan, Yuksel Iltas And Temur Kayhan (2017), Target P/E ratio determinants in the Turkish Stock Market: Earning volatility effect, *Theoretical and Applied Economics* Volume XXIV (2017), No. 4(613), Winter, pp. 65-74
- 19) Hirdinis M (2019). Capital Structure and Firm Size on Firm Value Moderated by Profitability, *International Journal of Economics and Business Administration*. VII (1), 174-191
- 20) Ochuko Benedict Emudainohwo Dr (2017), Determinants Of Price-Earnings Ratio: Nigerian Experience (Quantile Regression), *International Journal of Economics, Business and Management Research* Vol. 1, No. 05, p. 46-76.
- 21) Natalia Popa Antalovschi and Raymond A. K. Cox (2021), Financial Factors Affecting Price-to-Earnings Ratios in Canada, *International Journal of Finance*, Vol. 6, Issue No. 2, pp 43 – 61.
- 22) Nawi Purba Mohd, ofanaThalia, SelvicaDaniela, Selly (2022), The Effect Of Earning Per Share, Price Earning Ratio, Debt To Equity Ratio And Current Ratio On Stock Price Of Mining Company Listed In Indonesia Stockex Change (Idx) 2018-2021, *Scientific Journal Of Management, Economics, and Accounting*, Vol. 6 No.3, p. 733-745.
- 23) Rita Purnama Sari, Sri Hermuningsih and Agus Dwi Cahya (2021), Effect of Current Ratio, Debt Equity Ratio, Total Asset Turnover on Price Earning Ratio, *Proaksip-ISSN Journal: 2089 –127x* Vol. 8 No. 1, p. 156-165.
- 24) Sartono, A., & Munir, M. (1997). *Effect of Industry Category on Price Earning Ratio and Its Determinants*. Yogyakarta: BPFE.

Valuation of Stocks with Price Earning Ratio and Factors Affecting them on the Indonesia Stock Exchange (Basic Materials Sector Company Indexed Lq 45)

- 25) Siti Aisyah and Ahmad Rodoni (2016), Effects Of Net Profit Margin, Current Ratio And Dividend payout Ratio On Price Earning Ratio And Price Book Value (A Study On Consumer Goods Companies Listed In Indonesia Stock Exchange For The Period(2011-2013), Aktualita Manajemen, Volume 10 Number 1, p. 1-8.
- 26) Sumarni, Syaiful, Andreas CH, Yolanda (2022), Determinant Share Price Of Cement Sub-Sector
- 27) Companies On The Indonesia Stock Exchange (IDX), IOSR Journal of Economics and Finance (IOSR-JEF), Volume 13, Issue 2 Ser. VI, PP 30-37.
- 28) Tjiptono, D., & Hendi , M. (2016). Capital Market in Indonesia Q&A Approach. Jakarta: Salemba Empat.
- 29) Wenjing, H. (2017). Price-Earnings Ratio and Influence Factors: Evidence from China. Line of finance, Instructor:Timo Rothovius.



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The Competency Assessment of Hospitality Management Educators and the Hospitality Industry



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ABSTRACT: Hospitality management education has been a widely studied area. It has been studied by many authors by which and is still in deliberation in a true meaning. As the hospitality industry and a service-oriented area, most of the programs put more weight on industry demands and expectations, and opinions. As a result, most of the relevant program studies tend to focus on the employer's perspective, with very few focusing on the actual recipients and providers of education. The study was conducted to determine the competency assessment of hospitality management educators and hospitality industry employees in the province of Cotabato. A descriptive-correlational research design was utilized, and respondents were selected through random sampling. In addition, the scope of the extent of literature either focused only on one discipline (restaurant) or on hospitality in general, leaving the comparison of the relevant competencies between the core industries of hospitality, hotel management, and food and beverage management and the universities. Furthermore, the weighted mean with its corresponding verbal description was used to determine the competency assessment of hospitality management educators and the hospitality industry, and spearman-rank correlation to determine the relationship between competencies taught by hospitality management educators and competencies demanded by the hospitality industry. Results show that competencies taught by hospitality management educators have no significant relationship to the responses in the competencies demanded with a correlation coefficient of 0.304 and a probability of 0.103 and there was a significant relationship between the competencies taught and demanded by the hospitality Industry in Cotabato, Province.

KEYWORDS: Competencies, Competency-based education, Competency models, Hospitality management education, Hospitality industry

I. INTRODUCTION

Hospitality and tourism education will be facing challenging years ahead. The Philippine Department of Tourism (DOT) is looking at a 10 percent increase in foreign receipts of \$ 6.5 billion with a target of 10 million international tourists since 2016 because of enhanced air connectivity and capacity expansion initiatives. This translates to more investments indirect and related tourism and related tourism facilities thereby increasing manpower requirements. The often-asked question, however, is whether graduates of hospitality education programs do in fact possess the necessary skills and abilities or competencies that the industry is looking for.

One of the biggest challenges of hospitality management educators is determining the objectives and goals for the curriculum to the constantly changing demanded needs of the hospitality industry. Closing the gap between what is taught to hospitality management students and what the hospitality industry demands from the graduates being hired are an essential step (Dopson & Tas, 2004). As change is an accepted and necessary part of doing business. Whether it is to stay ahead of the curve in everything from menu development to recently enacted legislation, hospitality operators must be able to position their business to be agile enough to remain competitive in today's world.

Hospitality management education has been a widely studied area. (Riegel, 1995) defines hospitality management education as a multidisciplinary field, which brings the perspective of many disciplines, especially those found in social sciences to bear on specific areas of practice and application in the hospitality industry. As one of the largest industries in the world, millions of jobs whose economic contributions are generated either directly or indirectly by the hospitality industry benefits large segments of society, as well as national and local governments (Golder & Ritchie, 2009). Hospitality is also one of the most diversified industries in the world because of the wide number of different occupations and professions involved in it.

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The wide array of hospitality fields has contributed immensely to the growth of hospitality education. With more and more 2-year or 4-year institutions opting in for hospitality curriculum has become a key issue as far as preparing a student for a successful career in the hospitality industry. According to Gill Rowley et. al (2000); Employers Skill Survey: Case Study Hospitality sector, skills required by employers were grouped into three categories: Industry-specific or vocational skills (mainly technical skills such as food production and preparation, stock management (cost control); generic skills and competence deriving from attitude to work. The same study stated that while nearly all employers reported a willingness to train staff in most technical skills and to an increasing extent in generic skills, which were found to be the most critical in terms of recruitment, hardest to address, and which they were most likely to see as a problem outside their remit and beyond their means to remedy. Therefore, to develop the missing work values and skills employees should extend their personal competencies in performing tasks. If for any reason, some essential competencies or qualifications are missing, participation in workshops, seminars, and training employees will be able to increase and broaden their knowledge. By doing this key results individual development and according to (Lee, Kahn & Ko, 2008), employees' high job satisfaction in the workplace can bring an improved quality of service to customers and rule out negative factors such as spending much time on handling customers' complaints, an irreparable reputation for the hotel, and low levels of motivation of employees to work. Thus, the development of employees' skills, competencies, and knowledge has a very direct effect on the quality of service and the output of the hotel.

This study will provide supplemental information on determining the competencies provided by hospitality management educators that comply with the competencies demanded by the hospitality industry. The study focused on the educators and employees in selected hospitality management colleges and hospitality industry establishments in Cotabato province.

II. RESEARCH METHOD

The study utilized a descriptive-correlational research design. A researcher-made survey questionnaire was prepared and was divided into three parts: First, is identified the socio-demographic profile of the respondents using frequency counts and percentages. Second, identify the competencies taught by hospitality management educators by getting the weighted mean with its corresponding verbal description, and third identified the competencies demanded by the hospitality industry. It was validated by the Research Committee of the institution to gather data, particularly those pertaining to the competencies taught by hospitality educators and competencies demanded by hospitality including the essential and considered moderate importance as well as no importance to least importance.

The participants in the study were hospitality management educators from hospitality management colleges and hospitality industry managers from hospitality establishments in Cotabato province. A Spearman-rank correlation was used to determine the relationship between competencies taught by hospitality management educators and competencies demanded by the hospitality industry.

III. RESULTS AND ANALYSIS

3.1 Socio-Demographic Profile

Identifying the socio-demographic profile of the hospitality management educators and hospitality industry employees of Cotabato province, including the age, years in the profession, gender, civil status, and educational attainment. Table 1 indicated that out of 60 respondents 49 or 82% of the greater number of respondents were in the bracket of 22-35 years old; 1-5 years in the profession with 37 or 62%; mostly were female with 37 or 62%; single with 33 or 55% and able to reach college level or college graduates with 38 or 63%.

Table 1. Socio-demographic profile of the respondents.

Characteristics	Frequency (n=60)	Percentage (%)
Age		
22-35	49	82
39-49	10	17
50-63	1	2
Years in Profession		
1-3 years	37	62
6-10 years	14	23
11-15 years	9	15

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Gender		
Male	23	38
Female	37	62
Civil Status		
Single	33	55
Married	24	40
Widowed	1	2
Separated	1	2
Educational Attainment		
Elementary Level/ Graduate	38	63
High School Level/ Graduate	8	13
College Level/Graduate	14	23

3.2. The competencies taught by hospitality management educators In Cotabato Province

Generally, the competency assessment taught by hospitality management educators had an overall weighted mean of 4.722 with a verbal description of Essential. This implies that the competencies presented in each competency domain were important and a crucial influence on their competency-based education system. These competencies imparted by hospitality management educators were deemed necessary for the need to supply the industry with competent professionals and preparation of the students for a successful career in the hospitality industry. The result sustains the study of Tas (1988) as he believes that competencies are the activities and skills deemed necessary to perform a specific duty at a given job,

Specifically, the respondents revealed that "Ethics" as the most essential under the leadership domain got the highest with a mean of 4.94. It is because it encompasses a set of moral principles and traits an employee uses in his or her job in the industry. The result is supported by the idea of Sandwith (1993) as he believes that leadership is an important aspect of any industry. The leader of an organization must have the support of all employees if the company wants to succeed. Hospitality management educators focus on specific skills and abilities that employers might be looking for and emphasize the specification of the behaviors or competencies that can be promoted, altered, or acquired by the learner.

Results also showed that the respondents rated the remaining competencies as essential. On other hand, Knowledge of Market Development Theory under the conceptual domain gained considerable essential with a mean of 4.27. Result affirms the idea of Goodman and Sprague (1991) and Barrows (1999) that colleges and vocational schools focus on teaching the hands-on skills necessary to work in the hospitality industry and thus generate a good number of students that begin working at the line-level and four-year programs focus on preparing students for a management position in the hospitality industry. Knowledge of market development theory, under the conceptual, domain rated the lowest since the hospitality industry's expectations are complex and dynamic. Knowledge about the market and its function may be focused on competency-based education but its development theory may be still in the process of utilization.

Table 2. The competencies taught by hospitality management educators in Cotabato Province.

ITEMS	Weighted Mean	Verbal Description
Technical Domain		
Marketing	4.80	Essential
Sales Techniques	4.67	Essential
Technology Applications	4.70	Essential
Forecasting and Budgeting	4.60	Essential
Budget Development and Resource Allocation	4.47	Considerate importance
Facilitates and Occupancies Management	4.47	Considerate importance
Administrative Domain		
Strategic Thinking and Planning	4.87	Essential

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Staff Supervision	4.74	Essential
Staff Selection	4.60	Essential
Staff Evaluation	4.64	Essential
Change management	4.37	Considerate importance
Personnel Management	4.70	Essential
Interpersonal Domain		
Decision Making	4.87	Essential
Interpersonal Communication	4.90	Essential
Customer Services	4.87	Essential
Public Relations	4.80	Essential
Policy Development and Interpretation	4.70	Essential
Behavioral Education	4.84	Essential
Leadership Domain		
Personal Characteristics	4.87	Essential
Ethics	4.94	Essential
Motivation	4.84	Essential
Organizational Culture	4.70	Essential
Staff Training	4.84	Essential
Conflict Management	4.77	Essential
Conceptual Domain		
Assessment of Customer Needs and Interests	4.67	Essential
Awareness of Market Characteristics	4.67	Essential
Global Awareness	4.67	Essential
Knowledge of Company Functions	4.70	Essential
Familiarity with current Issues in the industry	4.70	Essential
Knowledge of Market Development theory	4.27	Considerable Essential
Overall Description	4.72	Essential

Legend:

Weighted mean	Verbal Description
4.50 – 5.00	- Essential
3.50 – 4.49	- Considerate Importance
2.50 – 3.49	- Moderate Importance
1.50 – 2.49	- Limited Importance
1.00 – 1.49	- No Importance

3.3 The competencies demanded by the hospitality industry in Cotabato Province

Table 3 presented the competencies demanded by the hospitality industry in Cotabato Province. As can be gleaned from the result, the competency assessment demanded by the hospitality industry had an overall weighted mean of 4.609 with a verbal description of Essential. It can be indicated that the hospitality industry demands that hospitality management educators impart these competencies and must provide their graduates with the tools necessary to be successful in the ever-changing world. Specifically, the respondents rated Decision making under the interpersonal domain as the highest with a mean of 4.90.

Results also showed that the respondents rated the remaining competencies as essential. On the other hand, change management under the administrative domain and global awareness under the conceptual domain both gained the lowest response with a mean of 4.30. The result runs parallel to the idea of the US Department of Education (2002) which defines competencies as a group or package of skills, abilities, and knowledge that can be used as currency in the workplace. They must all relate to skills or knowledge taught in the classroom that students can apply in the workplace.

Decision Making, under the administrative domain, rated as the highest competency of the hospitality industry, can be interpreted for its function as an action of hosing between possible solutions to a problem. It can be made through either an intuitive or reasoned process or a combination of the two. This competency is treated essentially for the hospitality industry

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because hospitality managers must consider that decisions need to be capable of being implemented, whether on a personal or organizational level. They, therefore, need to be committed to the decision personally and be able to persuade others of its merits. Change management under the administrative domain and global awareness under the conceptual domain both gained the lowest rate since expectations of the hospitality industry drive change in competency requirements as well. It identifies the level of proficiency and types of competencies required for a certain position and trains employees to be competent in skills and abilities which results in having the competencies at the least level.

Table 3. The competencies taught by hospitality management educators in Cotabato Province.

ITEMS	Weighted Mean	Verbal Description
Technical Domain		
Marketing	4.87	Essential
Sales Techniques	4.67	Essential
Technology Applications	4.47	Considerate importance
Forecasting and Budgeting	4.54	Essential
Budget Development and Resource Allocation	4.57	Essential
Facilitates and Occupancies Management	4.47	Considerate importance
Administrative Domain		
Strategic Thinking and Planning	4.64	Essential
Staff Supervision	4.64	Essential
Staff Selection	4.50	Essential
Staff Evaluation	4.70	Essential
Change management	4.30	Considerate importance
Personnel Management	4.67	Essential
Interpersonal Domain		
Decision Making	4.90	Essential
Interpersonal Communication	4.84	Essential
Customer Services	4.80	Essential
Public Relations	4.80	Essential
Policy Development and Interpretation	4.44	Considerate importance
Behavioral Education	4.60	Essential
Leadership Domain		
Personal Characteristics	4.80	Essential
Ethics	4.77	Essential
Motivation	4.77	Essential
Organizational Culture	4.44	Considerate importance
Staff Training	4.77	Essential
Conflict Management	4.40	Considerate importance
Conceptual Domain		
Assessment of Customer Needs and Interests	4.87	Essential
Awareness of Market Characteristics	4.50	Essential
Global Awareness	4.30	Considerate importance
Knowledge of Company Functions	4.54	Essential
Familiarity with current Issues in the industry	4.44	Considerate importance
Knowledge of Market Development theory	4.34	Considerable Essential
Overall Description	4.72	Essential

Legend:

Weighted mean Verbal Description
4.50 – 5.00 - Essential

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3.50 – 4.49	-	Considerate Importance
2.50 – 3.49	-	Moderate Importance
1.50 – 2.49	-	Limited Importance
1.00 – 1.49	-	No Importance

3.4. The Relationship Between Competencies Taught by Hospitality Management Educators and Competencies Demanded by the Hospitality Industry in Cotabato Province

The responses in competencies taught by hospitality management educators and competencies demanded by the hospitality industry were correlated. The results show that there is a significant relationship between the competency taught and demanded in terms of facilities and occupancies management under the technical domain with a probability value of 0.047. The correlation coefficient is equal to 0.366 which shows a positive weak correlation. A positive correlation means that both the educators and hospitality industry agreed that this competency is essential. However, the relationship is weak other factors might be explored.

The results show that there was a significant relationship between the competency taught and demanded in terms of Global awareness under the conceptual domain with a probability value of 0.022. The correlation coefficient is equal to 0.428 which showed a positive weak correlation. A positive correlation means that both the educators and hospitality industry agreed that this competency is essential. However, the relationship is weak, other factors might be explored.

Furthermore, the results show that there was a significant relationship between the competency taught and demand in terms of knowledge of market development theory under the conceptual domain with a probability value of 0.012. The correlation means that both the educators and the hospitality industry agreed that this competency is essential. However, the relationship is weak, other factors might be explored.

The average responses on the competencies taught by hospitality management educators have no significant relationship to the responses in the competencies demanded by the hospitality industry.

Table 4a. Test of the relationship between competencies taught by hospitality management educators and competencies demanded by the hospitality industry in Cotabato Province

Variables	Correlation Coefficient	Probability
Technical Domain		
Marketing	-0.196 ^{ns}	0.299
Sales Techniques	0.100 ^{ns}	0.599
Technology Applications	0.048 ^{ns}	0.802
Forecasting and Budgeting	-0.050 ^{ns}	0.794
Budget Development and Resource Allocation	0.242 ^{ns}	0.197
Facilitates and Occupancies Management	.366*	0.047
Administrative Domain		
Strategic Thinking and Planning	0.141 ^{ns}	0.457
Staff Supervision	-0.116 ^{ns}	0.540
Staff Selection	0.220 ^{ns}	0.243
Staff Evaluation	-0.045 ^{ns}	0.812
Change management	0.209 ^{ns}	0.267
Personnel Management	0.000 ^{ns}	1.000
Interpersonal Domain		
Decision Making	0.196 ^{ns}	
Interpersonal Communication	0.149 ^{ns}	
Customer Services	0.049 ^{ns}	
Public Relations	-0.174 ^{ns}	
Policy Development and Interpretation	-0.189 ^{ns}	
Behavioral Education	0.183 ^{ns}	
Leadership Domain		
Personal Characteristics	0.049 ^{ns}	0.299

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Ethics	0.169 ^{ns}	0.432
Motivation	-0.247 ^{ns}	0.797
Organizational Culture	0.094 ^{ns}	0.356
Staff Training	0.208 ^{ns}	0.318
Conflict Management	-0.14 ^{ns}	0.334
Conceptual Domain	0.015 ^{ns}	0.935
Assessment of Customer Needs and Interests		
Awareness of Market Characteristics	0.238 ^{ns}	0.206
Global Awareness	.418*	0.022
Knowledge of Company Functions	0.198 ^{ns}	0.294
Familiarity with current Issues in the industry	0.262 ^{ns}	0.162
Knowledge of Market Development theory	.452 ^{ns}	0.012

Legend:

** Correlation is significant at the 0.01 level

*Correlation is significant at the 0.05 level

ns Correlation not significant

Table 4b. The relationship between competencies taught by hospitality management educators and competencies demanded by the hospitality industry in Cotabato Province.

Variables	Correlation Coefficient	Probability
Competencies taught and demanded	0.304 ^{ns}	0.103

IV. CONCLUSIONS

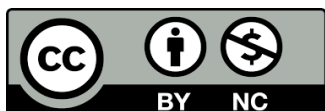
Based on the findings of the study, it has shown that the average responses to the competencies taught by hospitality management educators have no significant relationship to the responses in the competencies demanded by the hospitality industry. An understanding of how best to educate and develop human capital would benefit the tourism industry. Thus, the hospitality industry should improve its standards and expectations. The hospitality industry expectations are complex and dynamic and so its definition remains open to ongoing debate and research (Brotherton, 2002; Hemmington, 2007). As expectations drive to change from day to day, the business developing variables drive change in competency requirements as well. The following are the recommendations of the researcher, competency models must be utilized in teaching hospitality management education for it has been proven as a useful tool for identifying, categorizing, and summarizing competencies for the students. The hospitality educators must meet the demanded competencies of the hospitality industry to supply the industry with competent professionals and preparation of the students for a successful career in the hospitality industry. The hospitality management education and the hospitality industry must strive to have a significant relationship to adequately prepare the workforce and meet the demands of both industries. The hospitality industry must improve its standards and expectations based on the competencies taught by hospitality management educators to help educate and develop human capital that would benefit the hospitality industry.

REFERENCES

- 1) Brotherton, B. 2002. Finding the hospitality industry. A Final Response to Slattery. *Journa of Hospitality, Leisure, Sports & Tourism Education*. Vol. 2. Iss 2. Pp45-52.
- 2) Dopson, L.R & Tas, R. F. 2004. A practical approach to curriculum development. A case study. *Journal of Hospitality & Tourism Education*. The International Journal of Theories and Practice. Vol. 16. Iss 1. Pp.39-46.
- 3) Hemmington, N. 2007. From service to experience. *Service Ind. J.* Vol.27. Iss. 6. Retrieved from <https://www.eprints.bournemouth.ac.uk/836/hemmington-output4.ppt>.
- 4) Gill, Rowley et.al.2000
- 5) Goldner C.R and Ritchie, J.R.B. 2009. *Tourism Principles, Practices, Philosophies (11th ed.)*. Hoboken, NJ: Jhon Wiley
- 6) Goodman, R & Sprague L. 1999. The future of hospitality education: Meeting the industry's needs. *The Cornell and Restaurant Administration Quarterly*. Vol.32.Iss.2. pp. 66-70.
- 7) Lee, K, Khan M. & Ko, J. 2008. Outback steakhouse in Korea: a success story. *Cornell Hotel and Restaurant Administration Quarterly*. Vol. 49. Iss. 1. pp. 62-72.

The Competency Assessment of Hospitality Management Educators and the Hospitality Industry

- 8) Riegel C.D.1995. An introduction to career opportunities in hospitality and tourism. A guide to College programs in Hospitality and Tourism (4th ed.). New York: Jhon Wiley & Sons, Inc.
- 9) Sandwith, P. 1993. A hierarchy of management training requirements the competency domain model. Public Personnel Management. Vol. 22. Iss 1. Pp. 43-62. Retrieved March 2006 from EBSCO database.
- 10) U.S. Department of Education. National OCenter for Education Statistics.2002. Defining and assessing learning: Exploring competency-bases initiatives. Washington, DC.



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The Influence of Transfer Pricing and Sales Growth on Decisions Tax Avoidance



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ABSTRACT: The formulation of the problem in this study is how the influence of *transfer pricing* and *sales growth on tax avoidance* decisions (a case study on a coal sub-sector mining company listed on the Indonesia Stock Exchange for the 2017-2021 period). The type of research used is associative research. The data used is secondary data. The sample in this study were 12 coal mining companies listed on the Indonesia Stock Exchange in 2017-2021. Data collection technique is document analysis. The data analysis method in this research is quantitative analysis. The results of this study indicate that transfer pricing and sales growth have a significant effect on tax avoidance, partially transfer pricing has a significant effect on tax avoidance, sales growth has no significant effect on tax avoidance.

KEYWORDS: Transfer Pricing, Sales growth, Tax Avoidance

1. INTRODUCTION

Indonesia is one of the developing countries that always carry out development. To realize national development, the government requires substantial funds both from domestic sources and from foreign loans. One of the domestic revenues that has a very large contribution to national development is taxes (Muamala, 2019). The Law of the Republic of Indonesia Number 6 of 1983 concerning General Provisions and Tax Procedures as last amended by Law of the Republic of Indonesia Number 16 of 2009 explains that tax is a mandatory contribution to the state owed by an individual or entity that is coercive based on the law without receiving direct compensation and is used for the needs of the state for the greatest prosperity of the people.

Taxes have a very important role in a country, without taxes the life of the country will not be able to run well. Infrastructure development as well as the construction of public facilities are all financed by taxes. Therefore, the government will continue to strive to increase tax revenues to meet national development needs. The implementation of tax collection by the government does not always get good welcome from the company. Companies as corporate taxpayers always try to pay taxes as low as possible because taxes will reduce income or net income, while the government hopes to get as much income from taxes as possible in order to finance the implementation of government programs that are realized for the community (Maisyaroh, 2016).

This difference in interests causes taxpayers to tend to want to reduce the amount of tax payments in order to get as much profit as possible, both legally and illegally (Waluyo, 2010) This is what encourages companies to reduce tax payments legally, one of which is through tax *avoidance*.

tax avoidance is efforts made by the company to minimize the tax burden. Tax avoidance is considered legal because it is still in accordance with tax laws and regulations, but the government objected because tax avoidance actions could harm the state (Suandy, 2016) This is because the greater the company's income, the greater the tax charged, by taking advantage of gaps and loopholes in the company's tax regulations, it can reduce the amount of the tax burden, which can be done through *Transfer Pricing*, and *Sales Growth* (Mayangsari & Rohman, 2015).

Tax evasion activities can result in several bad risks for the company, including fines and the company's bad reputation in the eyes of the public. However, this risk is usually judged not to be proportional to what is obtained by the company, namely the low amount of tax payable which affects the company's profit. In Indonesia, the practice of tax avoidance has been widely practiced and Indonesia is one of the developing countries with the largest losses caused by tax avoidance (Mayangsari & Rohman, 2015).

Tax avoidance in some countries is triggered by various factors, namely the existence of *tax haven* countries, where these countries apply very low tax rates, thus triggering multinational companies to invest in *tax haven countries*. Another factor that

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companies do to avoid taxes is the practice of *transfer pricing* (Panjalusman et al., 2018) .

According to members of the IAI National Governing Council, *Transfer Pricing* is used by companies to minimize the amount of tax paid through price engineering transferred between divisions. Furthermore, according to the *Executive Director of the Center for Indonesian Taxation* , the practice of Transfer Pricing is mostly carried out by multinational companies in minimizing tax payments to the State, as a result , Indonesia has the potential to lose tax revenue of up to Rp. 100 trillion annually (www.cita.or.id).

In addition to *transfer pricing*, another factor that affects *tax avoidance* is *Sales Growth* , according to (Aprianto & Dwimulyani, 2019) *sales growth* is a measure that shows the development of sales levels from year to year or it can be said that a comparison chart between sales from the previous year to the previous year. this (current year). Sales growth in a company shows that the greater the sales volume, the profit to be generated will also increase which can cause the tax to be paid by the company to be greater (Dewinta & Setiawan, 2016) . This indicates that sales growth can also affect activities in tax avoidance (Irawati et al., 2020)

Previous research (Monica & Irawati, 2021) , (Pratiwi, 2020) , (Putri & Mulyani, 2020) stated that *Transfer Pricing* has an effect on *Tax Avoidance* . While the research results (Putra, 2017) , (Prambudi & Asalam, 2021) stated that *Transfer Pricing* has no significant effect on *Tax Avoidance*. According to (Malik et al., 2020) , (Munif, 2018) Stating that *Sales Growth* has a significant effect on *Tax Avoidance* . While the research results (Ningsih & Noviani, 2022) , (Monica & Irawati, 2021) shows that *Sales Growth* has no significant effect on *Tax Avoidance* .

Based on the results of secondary data collection regarding *Tax Avoidance*, *Sales Growth*, *Transfer Pricing* in Coal Sub Sector Mining Companies listed on the IDX 2017-2021, it shows that at PT. Adaro Energy Tbk, the highest tax avoidance rate occurred in 2017 of 0.261 and in 2019 of 0.349, the lowest level of tax avoidance in 2020 to 2021 Where the smaller the ETR value means the company has a greater chance of tax avoidance and vice versa (Titiek and Y.anni , 2016). Likewise, *sales growth* has increased in 2017 to 2021, meaning that there is a possibility for companies to avoid tax .

At the company PT. Golden Energy mines TBK, *Tax Avoidance* in 2017 to 2022 has decreased, meaning it is possible for companies to do tax avoidance by means of *transfer pricing*, because seen from the proportion of value obtained by *transfer pricing* has increased from 2017 to 2021. Likewise with *Sales Growth* which has fluctuated from 2017 to 2021, meaning that the company is likely to do tax evasion.

Agency Theory

Agency theory put forward by (Jensen & Meckling, 2012) which explains that the relationship that arises is due to a contract between shareholders who delegate the responsibility for managing the company to management. Agency theory was built as an effort to understand and solve problems that arise when there is incomplete information at the time of contracting. The contract in question is a contract between shareholders and management (Gudono, 2014) .

This conflict occurs because humans are economic creatures who have a selfish nature always prioritize their own interests. With the differences in the goals of shareholders and managers, they want their respective goals to be fulfilled, as a result, a conflict of interest arises. This causes management to be able to take *transfer pricing actions* to avoid *tax avoidance* so that tax payments will be low.

Transfer Pricing

Based on the regulation of the Director General of Taxes Number: PER-32/PJ/2011, *Transfer pricing* is the determination of prices in transactions between parties that have a special relationship (Ministry of Finance, 2010) . *Transfer pricing* is a company policy in determining the transfer price of a transaction between parties that is affected by a special relationship Tampubolon & Zulham (2018:10). *Transfer Pricing* is a company policy in determining the transfer price of a transaction, either in the form of goods or services or financial transactions carried out by the company (Writing Team of UMM Accounting Study Program, 2022) . *Transfer Pricing* is often referred to as a reasonable action in *Tax Avoidance activities*, companies carry out *transfer pricing* practices to reduce the amount of profit, so that tax payments to the state are low (Nurrahmi, AD, & Rahayu, 2020)

Based on some of the definitions above, it can be concluded that *Transfer pricing* is a company policy to determine the price of a transaction between related parties. *Transfer Pricing* Measurement the following formula is used:

$$RTP = \frac{\text{Accounts receivable to parties who have a special relationship}}{\text{Total Receivables}}$$

Source: tampubolon & zulham (2018)

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Special Relationship

Before proving *transfer pricing*, it must first be proven that the parties have a special relationship. According to the Income Tax Law, a special relationship between taxpayers occurs because of dependence or connection with one another due to ownership or use of technology. In the event that the taxpayer's special relationship occurs because of a blood relationship or marriage, in accordance with Article 18 (14) of the Income Tax Law (Tampubolon, 2018) namely:

- Taxpayers have direct or indirect capital participation of at least 25% in other taxpayers, or a relationship between taxpayers with participation of at least 25% in two or more taxpayers, as well as the relationship between two or more taxpayers which is called terminated.
- Taxpayers supervise other taxpayers or two or more taxpayers are under the same control, either directly or indirectly.
- There is a family relationship, either by blood or in a straight line and or sideways one degree.

Sales Growth

Sales Growth is a ratio used to measure how much the company's ability to maintain its position in the industry and economy (Fahmi, 2014) *Sales Growth* shows the extent to which the company can increase its sales with total sales as a whole (Kasmir, 2018). Based on several definitions, it can be concluded that *sales growth* describes an increase in sales from year to year. Sales growth can be measured based on changes in the company's total sales. If the level of sales increases, profits will also increase, so that it will have an impact on the high cost of taxes to be paid and of course it will allow *Tax Avoidance* action to occur. (Oktamawati, 2017) .

Measurement of *sales growth* in this study used the following formula:

$$Sales\ Growth = \frac{Current\ Sales - Previous\ Sales}{Previous\ Sales} \times 100\%$$

Source: Cashmere (2016:107)

Tax Avoidance

Tax avoidance is one of the efforts made to minimize or even eliminate the tax burden that is still within the framework of tax laws or tax regulations. The purpose of *tax avoidance* is to maximize *after tax returns* because taxes are an element of reducing profits available, both for distribution to shareholders and for investment. (Suandy, 2016) *Tax Avoidance* is an effort to streamline the *tax* burden by avoiding taxation by directing it to transactions that are not tax objects. the purpose of reducing the tax that must be paid.

Measurement of Tax Avoidance in this study can be used the following formula:

$$ETR = \frac{Tax\ expense}{Expense\ Before\ Tax}$$

Source: Suandy (2016:8)

Hypothesis

Based on the framework of thought, the research hypothesis is proposed as an answer to the formulation of this research problem as follows:

- H₁: *Transfer Pricing and Sales Growth Affect Tax Avoidance* in Coal Sector Mining Companies Listed on the Indonesia Stock Exchange in 2017-2021
- H_{2.a}: *Transfer Pricing Affects Tax Avoidance* in Coal Sector Mining Companies Listed on the Indonesia Stock Exchange in 2017-2021
- H_{3.b}: *Sales Growth Affects Tax Avoidance* in Coal Sector Mining Companies Listed on the Indonesia Stock Exchange in 2017-2021

2. METHODOLOGY

The type of research used by the author in this study is associative research. The data used in this study is secondary data. Secondary data is data obtained through collecting information from existing sources, such as data on company financial statements at www.idx.co.id, journals, articles, and previous studies. The location of this research was carried out in 25 Coal Sector Mining Companies Listed on the Indonesia Stock Exchange (IDX) in 2017 – 2021. The dependent variable in this study is *Tax Avoidance* (Y), while the independent variables are *Transfer Pricing* (X1) and *sales growth* (X2). The population used in this study

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were 25 coal mining companies listed on the Indonesia Stock Exchange (IDX). In this study, the sampling technique used was *purposive sampling method*, namely the technique of determining the sample with certain considerations or criteria (Sugiyono, 2016) so that the research sample is 12 coal mining companies listed on the Indonesia Stock Exchange (IDX) in 2017-2021. The data collection method in this study uses the document analysis method, which is to analyze the contents of research supporting documents such as annual financial report documents and independent audit reports at www.idx.co.id. The data analysis method used in this research is quantitative data analysis. The analytical technique used to determine the effect of *transfer pricing and sales growth on tax avoidance* in mining companies in the coal sector is multiple linear regression analysis, either jointly or partially. The data analysis technique in this research is assisted by the *statistical program for special science* (SPSS). Before doing analysis First, the following tests must be carried out:

CLASSIC ASSUMPTION TEST

According to (Wiratna, 2018) The classical assumption test consists of:

a. Normality test

Normality test aims to measure whether the data is normally distributed. In this study, to detect the normality of the data, it was carried out through statistical analysis using the *Kolmogorov Smirnov (KS)* test.

b. Multicollinearity Test

The multicollinearity test aims to determine whether or not there is a high correlation between independent variables in a multiple-current regression model. To test multicollinearity, it can be seen from the *Tolerance Value* or *Variance Inflation Factor* (VIF). if the tolerant value > 0.10 and the VIF value < 10.0 then there is no multicollinearity in the regression model.

c. Heteroscedasticity Test

Heteroscedasticity test aims to test the difference in residual variance from one observation period to another observation period . How to predict the presence or absence of heteroscedasticity in a model can be seen with a scatterplot image pattern, a regression that cannot occur heteroscedasticity, if:

- 1) The data points spread above and below / around the number 0.
- 2) Data points do not collect just above or below.
- 3) The spread of data points must not form a wavy pattern that widens then narrows and widens back.
- 4) The spread of dots and not patterned.

d. Autocorrelation Test

The autocorrelation test aims to determine whether there is a correlation between the previous variables. To detect autocorrelation by performing the Run Test test, i.e. If the Asymp.sig (2-tailed) value is greater than 0.05 then there are no symptoms of autocorrelation

HYPOTHESIS TESTING

a. Multiple Linear Regression Analysis

Multiple linear regression analysis is a linear relationship between two or more dependent variables (X_1, X_2) with the dependent variable (Y) (Sugiyono, 2016) This analysis is used to determine the relationship between the independent variable and the dependent variable whether each variable is positively related or negative.

b. Joint Hypothesis Testing (F Test)

The F test aims to determine how much influence the independent variable (X_1, X_2) has on the dependent variable (Y) together

c. Parcial / Individual Test (t test)

The t test is a test that shows how much influence the independent variables (X_1, X_2) have on the dependent variable individually.

3. RESULTS AND DISCUSSION

Classic assumption test

a. Normality Test Results

Normality test aims to determine whether the data used is normally distributed , so it can be used in statistics. In this study to detect the normality of the data using non-parametric statistics with Kolmogorov-Smirnov (KS). Based on the results of the normality test, it is known that the significance value is $0.202 > 0.05$, so the residual value is normally distributed. As shown in the table below:

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Table 1. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters ^a	mean	.0000000
	Std. Deviation	.14697006
Most Extreme Differences	Absolute	.138
	Positive	.138
	negative	-.133
Kolmogorov-Smirnov Z		1.070
asymp. Sig. (2-tailed)		.202
a. Test distribution is Normal.		

Source: SPSS Output Results version 16, 2022

b. Multicollinearity Test Results

multicollinearity test can be seen from the table as follows:

Table 2. Multicollinearity test results

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Transfer Pricing	.895	1.117
	Sales Growth	.895	1.117
a. Dependent Variable: Tax Avoidance			

Source: SPSS Output Results version 16, 2022

Based on the table above, the tolerance value for the *Transfer Pricing* and *Sales Growth* variables is 0.895, which means the value is > 0.10. The VIF value of the *Transfer Pricing* and *Sales Growth* variables is 1.117 which means < 10.00, then these variables do not occur multicollinearity symptoms.

c. Heteroscedasticity Test

The results of the heteroscedasticity test can be seen in Figure 1 below:

Scatterplot

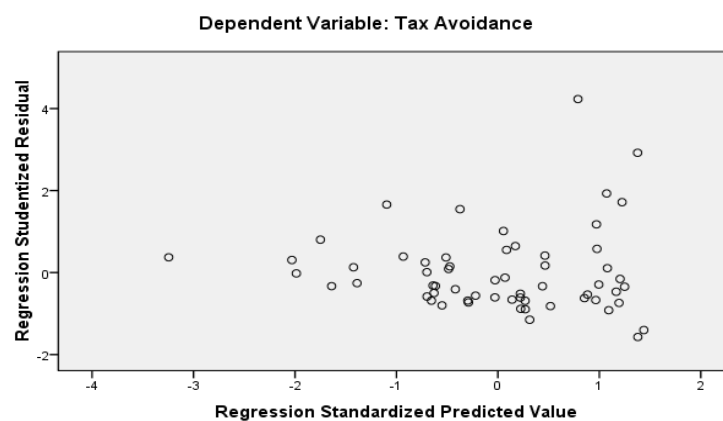


Figure 1. Heteroscedasticity Test Results

Source: SPSS Output Results version 16, 2022

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Based on the picture above, the dots spread randomly and do not form a certain clear pattern and are spread both above and below zero on the Y axis. This means that there is no heteroscedasticity.

d. Autocorrelation Test

The results of the autocorrelation test in the study are shown in table 3 below:

Table 3. Autocorrelation Test Results

Runs Test	
	Unstandardized Residual
Test Value ^a	-.04111
Cases < Test Value	30
Cases >= Test Value	30
Total Cases	60
Number of Runs	24
Z	-1.823
asymp. Sig. (2-tailed)	.068

a. median

Source: SPSS Output Results version 16, 2022

Based on the table above, it is known that the Asymp.sig (2-tailed) value of 0.068 is greater than 0.05, so it can be concluded that there are no autocorrelation symptoms or problems.

HYPOTHESIS TESTING

a. Multiple Linear Regression Analysis

This analysis is to determine the relationship between *Transfer pricing* and *Sales Growth variables on Tax Avoidance*. The results of multiple linear regression analysis are shown in table 4 below:

Table 4. Results of Multiple Linear Regression Calculations

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.264	.036		7.393	.000
	Transfer Pricing	-.665	.221	-.390	-3.004	.004
	Sales Growth	.034	.077	.057	.438	.663
a. Dependent Variable: Tax Avoidance						

Source: SPSS Output Results version 16, 2022

The results of multiple linear regression test on *transfer pricing* and *sales growth variables on tax avoidance*, the regression equation can be formulated as following :

$$Y = a + b_1X_1 + b_2X_2 + e$$

$$Y = 0.264 - 0.665 X_1 + 0.034 X_2 + e$$

- 1) Constant value of 0.264. this shows that if the *transfer pricing* and *sales growth variables* are considered constant or 0, then the *tax avoidance variable* will increase by 0.264
- 2) *Transfer pricing* regression coefficient value is -0.665, meaning that if *transfer pricing* decreases by one percent, *tax avoidance measures* will decrease by 0.665 assuming other variables are constant or fixed, and vice versa.
- 3) *sales growth* regression coefficient is 0.034, meaning that if *sales growth* increases by one percent of *sales growth*, then *tax avoidance* will increase of 0.034 assuming other variables are constant or fixed, and vice versa.

The Influence of Transfer Pricing and Sales Growth on Decisions Tax Avoidance

b. Joint Test (F Test)

The F test was conducted to find out how much influence the *transfer pricing* (X1) and *sales growth* (X2) variables together had on the *tax avoidance variable* (Y). The results of joint hypothesis testing can be seen in table 5 below:

Table 5. Joint Test Results (F Test)

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.209	2	.104	4.671	.013 ^a
	Residual	1,274	57	.022		
	Total	1.483	59			

a. Predictors: (Constant), Sales Growth , Transfer Pricing
b. Dependent Variable: Tax Avoidance

Source: SPSS Output Results version 16, 2022

The table above explains that the calculated F value is $4.671 > F_{table}$ is 3.161 with Sig 0.013 < 0.05, then H_0 is rejected, and H_a is accepted, meaning that *transfer pricing* and *sales growth variables* together have a significant effect on *tax avoidance* in listed Coal Sector Mining Companies. on the Indonesia Stock Exchange in 2017 – 2021.

c. Partial Test (t Test)

The t-test was conducted to determine whether there was an influence of the *transfer pricing* (X1) and *sales growth* (X2) variables individually partially on the *tax avoidance variable* (Y). The results of individual or partial hypothesis testing can be seen in table 6 below:

Table 6. Partial Test Results (t Test)

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.264	.036		7.393	.000
	Transfer Pricing	-.665	.221	-.390	-3.004	.004
	Sales Growth	.034	.077	.057	.438	.663

a. Dependent Variable: Tax Avoidance

Source: SPSS Output Results version 16, 2022

1) Effect of *transfer pricing* (X1) on *tax avoidance* (Y)

The results of the hypothesis show that the *transfer pricing variable* (X1) has a t value of -3.004, while the t_{table} with significance level (α) 5% or 0.05 and (df) = nk-1 that is (60-2-1) = 57 is 1.672 meaning that t_{count} is greater than t_{table} that is -3.004 > 1.672 and significant 0.04 < 0.05, it can be concluded that H_0 is rejected and H_a is accepted, meaning that *transfer pricing* (X1) has a significant and significant effect on *tax avoidance* (Y)

2) Effect of *sales growth* (X2) on *tax avoidance* (Y)

The results of the hypothesis show that the *sales growth variable* (X2) has a t - count value of 0.438 while the t - table with Significance level (α) 5% or 0.05 and (df) = nk-1 that is (60-2-1) = 57 is 1.672 meaning that t_{count} is smaller than t_{table} is 0.438 < 1.672 and significant is 0.663 > 0.05 so it can be concluded that H_0 is accepted and H_a is rejected, meaning that *sales growth* has no effect and is not significant on *tax avoidance*.

DISCUSSION

Effect of *Transfer Pricing* and *Sales Growth* on *Tax Avoidance*

it shows that H_1 is accepted while H_0 is rejected, which means that the variable *Transfer pricing* and *sales growth* have a joint effect on *tax avoidance*. *Transfer pricing* is an effort to exchange products or services between two different entities within a

The Influence of Transfer Pricing and Sales Growth on Decisions Tax Avoidance

company or related party which aims to avoid tax (Putri & Mulyani, 2020). *Sales growth* is an important role in working capital management, because sales growth can describe the good or bad level of sales growth of a company. Increased sales growth tends to make the company get a large profit. so that companies tend to practice *tax avoidance*.

At PT. Adaro Energy Tbk (ADRO) in 2020 - 2021, the company has a relatively high level of *transfer pricing* and *sales growth ratio*, and *low tax avoidance*. This shows that the *transfer pricing* and *sales growth variables* have a joint effect on *tax avoidance*. Where the greater the value of *transfer pricing*, the higher the level of *tax avoidance* by the company, as evidenced by the smaller the value of ETR, meaning that the amount of tax burden received by the State is getting smaller. Likewise with *sales growth*, the higher the value of *sales growth*, the greater the *tax avoidance actions* taken by the company. The increase in sales growth tends to make the company get a large profit, therefore the company will tend to practice *Tax Avoidance* (Whardhany et al., 2021).

This study is in accordance with *agency theory*, where there is a relationship between the party who gives the authority (principal) and the party who receives the authority (agent) to minimize the company's tax burden so that the tax imposed is low, because low taxes result in high profits so that it benefits the company (Whardhany et al., 2021).

The results of this study are in line with research conducted by (Monica & Irawati, 2021), (Pratiwi, 2020), (Wibawa, 2019), (Herfiana, 2022) which states that *transfer pricing* and *sales growth variables* have a joint and significant effect on *tax avoidance*. However, this study is not in line with the results of research conducted by (Pratiwi, 2020) which states that *transfer pricing* and *sales growth* have no joint effect on *tax avoidance*.

Effect of Transfer Pricing on Tax Avoidance

Based on the results of hypothesis testing, it is shown that H_{a2a} is accepted and H_{02a} is rejected. This means that the *transfer pricing* variable has a significant effect on *tax avoidance*. The higher the *transfer pricing value*, the greater the opportunity for the company to take tax avoidance actions. The lower the *transfer pricing value*, the lower the company's tax avoidance will be.

PT. Adaro Energy Tbk (ADRO) has a relatively high *transfer pricing value*. This shows that *transfer pricing* has an effect on *tax avoidance*. *Transfer pricing* is an unreasonable pricing mechanism for the delivery of goods or services by related parties. This mechanism can be done by increasing the price (*mark up*) or lowering the price (*mark down*), which is mostly done by multinational companies. This can encourage *transfer pricing practices* that are used to avoid taxes. So the higher or lower the level of *transfer pricing* can affect *tax avoidance* in the company (Zen, 2022).

This study is in accordance with *agency theory*, where there is a relationship between the *principal* and the *agent* of the company. the government wants to get a large tax while the company wants to pay a small amount of tax so that two different interests arise between the two parties, namely the government and the company. So, the agency theory which states that the parent company *transfers pricing* to its subsidiaries is deliberately done for tax avoidance. This is based on the company's desire to earn large profits (Herfiana, 2022) A multinational company will try to minimize the global tax burden by taking advantage of the gap in a country's tax provisions, so that there is an opportunity to avoid tax.

The results of this study are in line with research conducted by (Wibawa, 2019), (Pratomo & Triswidyaria, 2021) and reinforced by research results (Pratiwi, 2020) which state that *transfer pricing* has a significant effect on *tax avoidance*. However, the results of this study are not in line with research conducted by (Prambudi & Asalam, 2021) which states that *transfer pricing* has no effect on *tax avoidance*.

Effect of Sales Growth on Tax Avoidance

Based on the results of hypothesis testing, it shows that H_{a2b} is rejected and H_{02b} is accepted, meaning that the *sales growth variable* does not have a significant effect on *tax avoidance*. Increased *sales growth* This will enable the company to increase capacity and increase the company's operating activities which shows that the higher *sales growth* results in high corporate profits, so the company can give appreciation to the management for not taking *tax avoidance actions*.

PT. Golden Energy Mines TBK (GEMS) has a relatively high *sales growth value*. This shows that when sales growth increases, tax avoidance decreases. This means that sales growth does not affect the level of tax avoidance, where companies that experience high sales growth and perform good efficiency will gain large profits so that tax avoidance can be avoided or even do not carry out tax avoidance activities.

The size of the company's sales growth does not affect the company's decision to do *tax avoidance*, because companies with increasing or decreasing sales growth have the same obligation to pay taxes, so sales growth is not a benchmark for companies to do *tax avoidance*.

The results of this study are in line with the results of research conducted by (Oktamawati, 2017), (Hidayat, 2018), and (Monica & Irawati, 2021) which state that *Sales Growth* has no effect on *tax avoidance*. However, this study is not in line with research conducted by (Irawati et al., 2020) and (Za'imah et al., 2020) which state that *Sales Growth* has an effect on *tax avoidance*.

The Influence of Transfer Pricing and Sales Growth on Decisions Tax Avoidance

4. CONCLUSIONS

Based on the results of the research and discussion described in chapter IV, it can be concluded that, together, *Transfer Pricing* and *Sales Growth* have a significant effect on *tax avoidance*. Individually *Transfer Pricing* has a significant effect on *tax avoidance*, but *Sales Growth* has no significant effect on *tax avoidance* in Coal Sub-Sector Mining Companies Listed on the Indonesia Stock Exchange in 2017-2021.

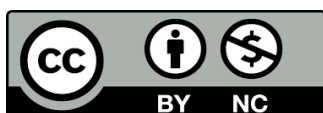
REFERENCES

- 1) Aprianto, M., & Dwimulyani, S. (2019). Effect of Sales Growth and Leverage on Tax Avoidance with Institutional Ownership as Moderating Variable. *Proceedings of the National Seminar* , 2 (14), 1–10. <https://trijurnal.lemlit.trisakti.ac.id/pakar/article/view/4246>
- 2) Dewinta, I., & Setiawan, P. (2016). Effect of Firm Size, Company Age, Profitability, Leverage, and Sales Growth on Tax Avoidance. *Udayana University Accounting E-Journal* , 14 (3), 1584–1615.
- 3) Fahmi, I. (2014). *Financial Statement Analysis* (D. Handi (ed.); 4th ed.). Dimas Handi.
- 4) Gudono. (2014). *Organizational theory* (Mutya (ed.); 4th ed.). Andi Offset.
- 5) Herfiana, NN (2022). *The Effect of Transfer Prices, Leverage, and Company Size on Tax Avoidance in Companies Listed on the IDX in 2018-2020* . Hayam Wuruk University, Perbanas Surabaya.
- 6) Hidayat, WW (2018). The Effect of Profitability, Leverage and Sales Growth on Tax Avoidance: A Case Study of Manufacturing Companies in Indonesia. *Journal of Management and Business Research* , 3 (1), 19–26.
- 7) Irawati, W., Akbar, Z., Wulandari, R., & Barli, H. (2020). Profitability Analysis, Leverage, Sales Growth and Family Ownership Against Tax Avoidance. *Journal of Accounting Scientific Studies (JAK)* , 7 (2), 190–199. <https://doi.org/10.30656/jak.v7i2.2307>
- 8) Jensen, M., & Meckling, W. (2012). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *The Economic Nature of the Firm: A Reader, Third Edition* , 283–303. <https://doi.org/10.1017/CBO9780511817410.023>
- 9) cashmere. (2018). *Financial Statement Analysis* (11th ed.). Press Eagle.
- 10) Ministry of Finance. (2010). *Regulation of the Director General of Taxes Number: PER-32/PJ/2011* .
- 11) Maisyaroh, S. (2016). *The effect of executive character and capital intensity on tax avoidance (a case study on a manufacturing company in the consumer goods sector listed on the Indonesian stock exchange in 2011-2015)* .
- 12) Malik, A., Vocational, A., Raya, US, Raya, US, Umdiana, N., & Raya, US (2020). Effect of Firm Size, Sales Growth and Capital Intensity on Tax Avoidance. *LAWSUIT Journal of Taxation* , 1 (2), 92–108. <https://doi.org/10.30656/lawsuit>.
- 13) Mayangsari, VR, & Rohman, A. (2015). *Analysis of Factors Affecting Tax Avoidance of Companies Listed on the Indonesia Stock Exchange* . http://eprints.undip.ac.id/47776/%0Ahttp://eprints.undip.ac.id/47776/1/11_MAYANGSARI.pdf
- 14) Monica, BA, & Irawati, W. (2021). The Effect of Transfer Pricing and Sales Growth on Tax Avoidance in Manufacturing Companies. *Proceedings of the Bachelor of Accounting Final Project Periodically* , 1 (1), 1–20.
- 15) Muamala, P. (2019). *The effect of sales growth, leverage and company size on tax avoidance (empirical studies on property and real estate companies listed on the Indonesian stock exchange in 2013-2017)* .
- 16) Munif. (2018). *The effect of sales growth and profitability on tax avoidance (empirical study on manufacturing companies in the food and beverage sector for the period 2011-2015)* [Pamulang University]. <http://eprints.unpam.ac.id/id/eprint/4227>
- 17) Ningsih, IAMW, & Noviri, N. (2022). Financial Distress, Sales Growth, Profitability and Tax Avoidance. *E-Journal of Accounting* , 32 (1), 3542. <https://doi.org/10.24843/eja.2022.v32.i01.p17>
- 18) Nurrahmi, AD, & Rahayu, S. (2020). The Influence of Business Strategy, Transfer Pricing, and Political Connections on Tax Avoidance. *Journal of Accounting & Economics FE. UN PGRI Kediri* , 5 (2).
- 19) Oktamawati, M. (2017). Effect of Executive Character, Audit Committee, Company Size, Leverage, Sales Growth, and Profitability on Tax Avoidance. *Journal of Business Accounting* , 15 (1), 23–40. <https://doi.org/10.24167/JAB.V15i1.1349>
- 20) Panjalusman, PA, Nugraha, E., & Setiawan, A. (2018). The Effect of Transfer Pricing on Tax Avoidance. *Journal of Accounting & Finance Education* , 6 (2), 105. <https://doi.org/10.17509/jpak.v6i2.15916>
- 21) Prambudi, A., & Asalam, AG (2021). The Effect of Transfer Pricing, Capital Intensity and Profitability on Tax Avoidance (Case Study of Automotive Sub-Sector Companies listed on the IDX in 2013-2019). *E-Proceedings of Management* , 8 (5), 5495–5502.
- 22) Pratiwi, DR (2020). *Effect of Transfer Pricing, Capital Intensity, Financial Distress, Return On Capital Employed and Sales Growth on Tax Avoidance* [IIB DARMAJAYA]. <http://repo.darmajaya.ac.id/id/eprint/2628>
- 23) Pratomo, D., & Triswidyaria, H. (2021). Effect of transfer pricing and executive character on tax avoidance. *Journal of Actual*

The Influence of Transfer Pricing and Sales Growth on Decisions Tax Avoidance

Accounting , 8 (1), 39–50. <https://doi.org/10.17977/um004v8i12021p039>

- 24) Putra, BA (2017). *The effect of multinationality, transfer pricing and thin capitalization on tax avoidance (empirical study on manufacturing companies listed on the Indonesian stock exchange in 2011-2015)* . Pamulang University.
- 25) Putri, N., & Mulyani, SD (2020). The Effect of Transfer Pricing and Foreign Ownership on Tax Avoidance Practices With Corporate Social Responsibility (CSR) Disclosures As Moderating Variables. *Proceedings of the National Expert Seminar* , 1 (2), 1–9.
- 26) Suandy, E. (2016). *Tax law* (7th ed.). Salemba Four.
- 27) Sugiyono. (2016). *Management Research Methods* (5th ed.). CV ALFABETA.
- 28) Tampubolon, K. & ZAF (2018). *Transfer Pricing & How to Create a TP Doc* . Depublish.
- 29) UMM Accounting Study Program Writing Team. (2022). Dimensions of Factors Affecting Tax Avoidance. In LCI Setyawan, Setu , Agustin Dwi Haryanti (Ed.), *Economics* (p. 111). UMM PRESS.
<https://ummpress.umm.ac.id/ebook/sampling/Dimensions of Factors Affecting Tax Avoidance/>
- 30) Waluyo. (2010). *Indonesian Taxation* . Salemba Four. http://ucs.sulsellib.net//index.php?p=show_detail&id=29831
- 31) Whardhany, CA, Pratiwi, AP, & Pratama, BC (2021). Effect of Transfer Prices, Leverage and Sales Growth on Tax Avoidance. *Online Journal Systems UNPAM* , 1 (1), 554–571.
<http://openjournal.unpam.ac.id/index.php/PKS/article/download/19035/9783>
- 32) Wibawa, WS (2019). (2019). *Effect of Earnings Management, Profitability and Transfer Pricing on Tax Avoidance*.
- 33) Wiratna, SV (2018). *Business research methodology and quantitative approach to economics* (PB Press (ed.)).
- 34) Za'imah, A., Sobarudin, M., Permatasari, NI, Nabilah, ZN, & Holiawati. (2020). The Effect of Sales Growth and Company Age on Tax Avoidance. *Proceedings of the Pamulang University Webinar* , 1–10.
- 35) Zen, MAA (2022). *Effect of Transfer Pricing, Profitability and Leverage on Tax Avoidance in Metal Sector Companies listed on the Indonesia Stock Exchange*. UIN SMH BANTEN.



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Eva-Based Analysis of the Experience of Pt. Bank Pan Indonesia Tbk and Pt. Bank Bukopin Tbk for the Period of 2017-2021 in Indonesia



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ABSTRACT: PT. Bank Pan Indonesia Tbk and PT. Bank Bukopin Tbk performance will be evaluated in this research utilizing the 2017-2021 EVA technique. Secondary data are employed in a quantitative research technique. The information was gleaned from the published reports of PT. Bank Pan Indonesia Tbk and PT. Bank Bukopin Tbk in the form of documents. Analysis of the data utilized is EVA with indications if (1) $EVA > 0$ indicates a process of added economic value or strong company performance, (2) $EVA = 0$ indicates break-even or profit created to cover debts, and (3) $EVA < 0$ indicates there is no added economic value or total capital is larger than profit. Profit before taxes, weighted average cost of capital, and capital structure make up the three components of EVA. According to study with EVA estimates done at PT. Bukopin Tbk and PT. Panin Tbk over 2017–2021, the two banks did not create additional economic value, or had an EVA of zero. The corporation is prevented from creating economic added value by a number of circumstances. One of the causes is that, despite the fact that the after-tax profit created is far lower than other costs, the cost of debt is still substantial. This is due to the high interest costs incurred yet the limited availability of long-term debt or outside borrowing.

KEYWORDS: Bank; Performance; EVA, Economic; Company.

I. INTRODUCTION

A bank is a financial entity that collects and distributes funds. According to Banking Law No. 10 of 1998, a bank is a commercial institution that receives funds from the public in the form of savings and returns or distributes them to the community in the form of credit or other forms in order to improve the general public's standard of living (Qomariah, 2015). During the epidemic, banks faced a little economic disturbance. This may be observed in the way that certain individuals use their funds or money on a massive scale. As a result, the financial industry will face serious challenges. The bigger the quantity of cash seized, the more likely the bank would be unable to conduct financial transactions smoothly. As a result, the bank's health may deteriorate or its performance may suffer.

The first is the result of labor in terms of quantity or quality done by someone in accordance with the tasks assigned (Dosenpendidikan, 2021). Second, according to Prawiro (2020), performance includes all parties participating in operations and is an intrinsic component of the organization's or company's activities. The outcome or amount of achievement obtained by a person in his field of work according to specified criteria is recognized by the firm or organization's supervisor or management. This is directly tied to the work standards established by the organization (Guruekonomi, 2021).

Performance is also an indicator of an organization's or bank's success. The degree of profit created and the capacity to pay commitments are often used to assess excellent or poor performance. In connection with this issue, there has been media speculation that numerous banks' earnings have declined. First, PT. Panin Tbk's management indicated that the profit reduction was attributable to bank loans facing a halt in credit growth due to Indonesia's slowing economic development, as well as the application of prudential standards in preserving portfolio quality (Redaksi WE online, 2020).

The second BPK opinion on PT. Bank Bukopin Tbk supervision said that it does not suggest amending NPL (non-performing loans), provision for impairment, and minimum capital adequacy criteria. As a result, banks faced capital constraints (BPK, n.d.). Furthermore, the issue of rush money has forced many consumers to withdraw their monies on a regular basis. As a result, there is a need for research in order to increase performance while also becoming appealing to investors. The Economic Value Added

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(EVA) approach is one of the analyses that may be utilized to understand the performance circumstances that occur in the bank. So that management may take the necessary measures or choices in a timely and correct manner.

According to Larrabee (2013), EVA is a consistent rate of return for investors derived from economic profits. Economic value added (EVA), according to Clayton (2014), is a technique that may be utilized as a gauge of investment performance for hotels and other sorts of businesses. According to Stewart (*Economic Value Added Analysis for the Manufacturers Alliance/ MAPI*, 2011), EVA is an assessment of a company's genuine economic profit after deducting the costs of all invested capital, stock, and debt. The goal of this research, as stated above, is to assess the performance of PT. Bank Pan Indonesia Tbk and PT. Bank Bukopin Tbk using the 2017-2021 EVA technique.

II. RESEARCH METHODS

This is quantitative research with a descriptive explanation. In this study, descriptive means describing the situation of the item without proving the hypothesis. The size of conventional banking that has gone public was chosen for this study. PT. Bank Pan Indonesia Tbk and PT. Bank Bukopin Tbk were chosen as the location banks.

Documentation was used to collect data in this investigation. Documentation is secondary data collecting done on the site via direct data download. PT. Panin Tbk and PT Bukopin Tbk data collecting through online media. EVA analysis was utilized to analyze the data in this study. The Big Indonesian Dictionary defines analysis as a method of analyzing an occurrence in order to discover / know the true situation. The following are the steps for calculating EVA:

1) Determining the Cost of Debt Capital

This calculation use a pre-tax debt cost of debt formula ($\text{Interest Expense} / \text{Total Long-Term Debt}$) multiplied by 1.

2) Determining the Shared Capital Cost

This cost calculation use formula 1, which denotes a year divided by the Price Earnings Ratio, which may be calculated from the cost of equity as the share price in a year divided by earnings per share in a year.

3) Capital Structure Calculation

The capital structure is calculated by adding the total long-term debt and capital.

4) Determining the Weighted Average Capital Cost (WACC)

The computation is based on a formula that calculates each component, such as the cost of debt, the cost of share capital, and the proportion of equity. each in the capital structure of the firm.

5) EVA Calculation

There are several formulae for determining EVA. $\text{EVA} = \text{NOPAT} - \text{Capital charges}$, according to Liestiyowati (2011). The EVA calculation, according to Amri, is $\text{Operating profit} \times (1 - \text{tax rate}) - (\text{Weighted Average Cost of Capital} \times (\text{total assets} - \text{current liabilities}))$. Meanwhile, another viewpoint holds that $\text{EVA} = \text{NOPAT} - (\text{WACC Capital Invested})$ (Haddad, 2012).

In accordance with some of the ideas expressed above, it may be deduced that the calculating formula is $\text{EVA} = \text{NOPAT} - (\text{WACC} \times \text{capital structure})$.

6) Indicator-based interpretation (Rist, 2015)

Michael and Albert (2015):

- $\text{EVA} > 0$ (positive)

There is a firm/organization process in producing additional value for shareholders, which may also be regarded as strong business performance for the company.

- $\text{EVA} = 0$ (break even)

The earnings is utilized to pay off the organization's/debt. company's

- $\text{EVA} < 0$ (negative)

If the value is negative, the firm's or organization's performance is poor, and the operational profit after tax produced or created is less than the entire cost of capital in the enterprise.

III. RESULTS AND DISCUSSION

The data collected on the item under investigation by modifying the analysis tool's requirements. This research makes use of the essential data and is tailored to the requirements of EVA calculations. Except for share prices and earnings per share, the data is given in tabular form with values in millions of rupiah. So that the data collected and processed may be provided in the form of tables 1 and 2 (Idnfinancials, n.d.-a), (Idnfinancials, n.d.-b).

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Table 1. Shows data from PT. Bukopin Tbk. Balance Sheet and Income Statement for the fiscal year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Interest expense	46.691.399	5.082.247	5.442.479	4.498.700	3.169.293
Long-term debt	9.332.860	1.279.392	1.072.147	3.953.365	2.426.241
Share price	590	272	224	575	270
Earnings per share	2	2,83	3,23	(48,61)	(34,35)
Equity	221.908.806	8.594.437	8.905.485	8.466.442	13.205.904
Profit before tax	8.540.086	216.335	133.794	(3.922.869)	(3.144.025)
Tax expense	(2.354.487)	(26.365)	(82.955)	(664.760)	(841.746)

Source: processed data (2022)

Table 2. Shows data from PT. Panin Tbk. Balance Sheet and Income Statement for the fiscal year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Interest expense	8.831.594	8.247.532	8.755.818	7.378.410	4.792.084
Long-term debt	4.479.606	4.748.233	5.644.826	3.093.526	1.286.050
Share price	1.140	1.145	1.335	1.065	770
Earnings per share	100,15	129,22	137,70	128,83	85,67
Equity	36.288.731	40.747.117	44.441.714	47.460.332	48.547.747
Profit before tax	2.963.453	4.572.779	4.595.617	4.071.792	2.514.336
Tax expense	(955.016)	(1.385.622)	(1.097.318)	(947.587)	(697.360)

Source: processed data (2022)

A. Result

The study's findings are the outcomes of data analysis following computation or data processing. So, based on the data gathered and in line with what has been discussed, the following data analysis will be performed:

1) Determining the Debt Capital Cost (kd*)

$Kd^* = Kd$ is the formula employed in this computation (1-t)

The cost of debt that must be borne after tax at PT. Bukopin Tbk and PT. Panin Tbk may be computed and reported in tables 3 and 4.

Table 3. Debt Cost Calculation PT. Bukopin Tbk. year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Interest expense	46.691.399	5.082.247	5.442.479	4.498.700	3.169.293
Long-term debt	9.332.860	1.279.392	1.072.147	3.953.365	2.426.241
Cost of debt before tax	5,0029	3,9724	5,0762	1,1379	1,3062
1-T	75%	75%	75%	78%	78%
Debt cost	375%	297%	380%	88%	102%

Source: processed data (2022)

Table 4. Debt Cost Calculation for PT. Panin Tbk. year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Interest expense	8.831.594	8.247.532	8.755.818	7.378.410	4.792.084
Long-term debt	4.479.606	4.748.233	5.644.826	3.093.526	1.286.050

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Cost of debt before tax	1,9715	1,7370	1,5456	2,3851	3,7262
1-T	75%	75%	75%	78%	78%
Debt cost	147%	130%	116%	186%	290%

Source: processed data (2022)

According to the aforementioned estimations, Bank Bukopin suffers the greatest debt capital expenses in 2017-2021, which happened in 2019 at 380 percent owing to increased interest rates compared to 2017-2021. Meanwhile, Panin Bank will incur capital expenses in 2017-2021. Due to reducing long-term debt but still high interest expenditure, the peak debt occurred in 2021 at 290 percent.

2) Calculating the cost of equity (Ke)

The following formula is used to calculate the cost of share capital:

$$K_e = 1 / (\text{Closing share price} / \text{EPS})$$

$$T_o = 1 / \text{PER}$$

According to the specifications of the data used to compute, the formula can be constructed in the form of a table based on the calculation. The following are images of tables 5 and 6.

Table 5. Shows the calculation of PT. Bukopin Tbk. cost of shared capital for the fiscal year 2017-2021

Tahun	Share price	Earnings per share	Equity cost
2017	590	2	0,33%
2018	272	2,83	1,04%
2019	224	3,23	1,44%
2020	575	(48,61)	(8,45%)
2021	270	(34,35)	(12,72%)

Source: processed data (2022)

Table 6. Shows the calculation of PT Panin Tbk. cost of shared capital for the fiscal year 2017-2021

Tahun	Share price	Earnings per share	Equity cost
2017	1.140	100,15	8,78%
2018	1.145	129,22	11,28%
2019	1.335	137,70	10,32%
2020	1.065	128,83	12,11%
2021	770	85,67	11,13%

Source: processed data (2022)

According to the aforementioned estimate, the cost of PT. Bukopin Tbk. share capital was greatest in 2019 since profits per share generated were greater than in 2017-2021. PT. Panin Tbk. had the greatest cost of share capital to bear in 2020 since earnings per share did not fall dramatically.

3) Capital Structure Calculation

Tables 7 and 8 show how to calculate capital structure using the following formula:

$$\text{Long-term debt} + \text{equity} = \text{capital structure}$$

Table 7. shows the capital structure of PT. Bukopin Tbk. for the fiscal year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Long-term debt	9.332.860	1.279.392	1.072.147	3.953.365	2.426.241
Equity	221.908.806	8.594.437	8.905.485	8.466.442	13.205.904
Total	231.241.666	9.873.829	9.977.632	12.419.807	15.632.145
Composition of debt	4,03%	12,96%	10,75%	31,83%	15,52%
Composition of equity	95,96%	87,04%	89,25%	68,17%	84,47%

Source: processed data (2022)

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Table 8. shows the capital structure of PT Panin Tbk. for the fiscal year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Long-term debt	4.479.606	4.748.233	5.644.826	3.093.526	1.286.050
Equity	36.288.731	40.747.117	44.441.714	47.460.332	48.547.747
Total	40.768.337	45.495.350	50.086.540	50.553.858	49.833.797
Composition of debt	10,98%	10,44%	11,27%	6,12%	2,58%
Composition of equity	89,01%	89,56%	88,73%	93,88%	97,42%

Source: processed data (2022)

Based on the table for determining the share of long-term debt and ownership at PT. Bukopin Tbk and PT. Panin Tbk for the fiscal year 2017-2021.

4) WACC Calculation

The WACC formula is used in this calculation: $(K_d \times W_d) + (K_e \times W_e)$

The data may be displayed in the following table 9 and table 10 formats using the aforementioned formula:

Table 9. Calculation of PT. Bukopin Tbk Weighted Average Cost of Capital for the Fiscal Year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Composition of debt	0,0403	0,1296	0,1075	0,3183	0,1552
Dept cost	3,7522	2,9793	3,8072	0,8876	1,0188
Composition of equity	0,9596	0,8704	0,8925	0,6817	0,8447
Equity cost	0,0033	0,0104	0,0144	-0,0845	-0,1272
WACC	15,43%	39,51%	42,21%	22,49%	5,06%

Source: processed data (2022)

Table 10. Calculation of PT. Panin Tbk Weighted Average Cost of Capital for the Fiscal Year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Composition of debt	0,1098	0,1044	0,1127	0,0612	0,0258
Dept cost	1,4786	1,3027	1,1592	1,8604	2,9064
Composition of equity	0,8901	0,8956	0,8873	0,9388	0,9742
Equity cost	0,0878	0,1128	0,1031	0,1211	0,1113
WACC	24,05%	23,70%	22,21%	22,75%	18,34%

Source: processed data (2022)

The computed weighted average cost of capital is then multiplied by the capital structure to determine the cost of capital carried. The following tables, numbered 11 and 12, show how the total cost of capital for the two banks is calculated.

Table 11. Total Capital Cost of PT. Bukopin Tbk. for the Fiscal Year 2017-2021

Year	Capital structure	WACC	Total
2017	231.241.666	15,43%	35.680.589
2018	9.873.829	39,51%	3.901.149
2019	9.977.632	42,21%	4.211.558
2020	12.419.807	22,49%	2.793.214
2021	15.632.145	5,06%	790.986

Source: processed data (2022)

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Table 12. Calculation of PT. Panin Tbk. Total Capital Cost for the Fiscal Year 2017-2021

Year	Capital structure	WACC	Total
2017	40.768.337	24,05%	9.804.785
2018	45.495.350	23,70%	10.782.397
2019	50.086.540	22,21%	11.124.220
2020	50.553.858	22,75%	11.501.002
2021	49.833.797	18,34%	9.139.518

Source: processed data (2022)

According to the preceding data, the total cost of capital at PT. When compared to 2017-2021, the highest Bukopin Tbk was Rp. 35.680.589.000 in 2017. In comparison to 2017-2021, PT. Panin Tbk had the highest total cost of capital in 2020 of Rp. 11.501.002.000, -.

5) EVA Calculation

The formula employed is: $EVA = NOPAT - (WACC \times \text{capital structure})$ The EVA calculation is performed after all of the operations in the analytical phases have been completed. As a result, EVA may be expressed in the following tables 13 and 14:

Table 13. PT. Bukopin Tbk EVA Calculation for the Fiscal Year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Profit before tax	8.540.086	216.335	133.794	(3.922.869)	(3.144.025)
Tax expense	(2.354.487)	(26.365)	(82.955)	(664.760)	(841.746)
WACC	35.680.589	3.901.149	4.211.558	2.793.214	790.986
EVA	(29.494.960)	(3.711.179)	(4.160.719)	(7.380.843)	(4.776.757)

Source: processed data (2022)

Table 14. PT. Panin Tbk EVA Calculation for the Fiscal Year 2017-2021

Information	Year				
	2017	2018	2019	2020	2021
Profit before tax	2.963.453	4.572.779	4.595.617	4.071.792	2.514.336
Tax expense	(955.016)	(1.385.622)	(1.097.318)	(947.587)	(697.360)
WACC	9.804.785	10.782.397	11.124.220	11.501.002	9.139.518
EVA	(7.796.348)	(7.595.240)	(7.625.921)	(8.376.797)	(7.322.542)

Source: processed data (2022)

According to the foregoing statistics, EVA at Bukopin and Panin banks was negative from 2017 to 2021 since the weighted average cost of capital was greater than the profit after tax (NOPAT).

6) Interpretation

According to the indicators used, the study's findings are PT. Bank Pan Indonesia Tbk. and PT. Bank Bukopin Tbk. Because the weighted average cost of capital is more than the profit after tax, the resultant EVA is less than zero ($EVA < 0$) or does not create economic added value. This explains or demonstrates that the firm is unable to generate the rate of return that investors demand.

B. DISCUSSION

A series of analyses and EVA calculations performed at PT. Bukopin Tbk and PT. Panin Tbk between 2017-2021 revealed that the two banks did not produce economic added value. This is due to a number of factors that impede the firm from creating economic added value. For starters, the after-tax profit earned is significantly lower than other costs, or the after-tax cost of debt remains high. This is because the interest expense is considerable, yet there are few long-term debts or borrowed cash from outside parties. According to the cost of share capital, the increase of the company's profits per share is still not excellent.

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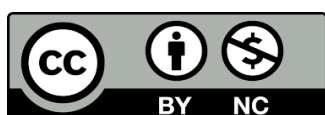
Second, in mid-2019, there was a pandemic, which indirectly influenced the credit or bad loan slowdown. Furthermore, the EVA calculation describes the company's performance. Managers have to assess a reduction in performance or negative economic value added at both institutions. Poor performance year after year cannot be used to predict the rate of return. This indicates that the corporation is having difficulties meeting its responsibilities, particularly to its shareholders.

IV. CONCLUSIONS

According to research conducted at PT. Bukopin Tbk and PT. Panin Tbk between 2017-2021, there is no added economic value created. This signifies that the corporation is having trouble meeting its responsibilities, particularly to shareholders. This is attributable to two factors: the cost of debt after tax remains high, and the cost of share capital remains low.

REFERENCES

- 1) BPK. (n.d.). BPK RI. Retrieved June 25, 2021, from <https://www.bpk.go.id/ihps>
- 2) Clayton, M. J. and C. H. L. (2014). Using Economic Value Added (EVA) as a Barometer of Hotel Investment Performance Using Economic Value Added (EVA) as a Barometer of Hotel Investment. 14, 6–22.
- 3) Dosenpendidikan. (2021). Pengertian Kinerja. <https://www.dosenpendidikan.co.id/pengertian-kinerja>
- 4) Guruekonomi. (2021). Pengertian Penilaian Kinerja: Unsur, Tujuan, Manfaat & Prosesnya. <https://sarjanaekonomi.co.id/penilaian-kinerja/>
- 5) Haddad, F. (2012). The Relationship between Economic Value Added and Stock Returns: Evidence from Jordanian Banks. *International Research Journal of Finance and Economics*, ISSN 1450-(Issue 89 (2012)).
- 6) Idnfinancials. (n.d.-a). PT. Bank KB Bukopin Tbk [BBKP] | IDNFinancials. Retrieved June 25, 2021, from <https://www.idnfinancials.com/id/bbcp/pt-bank-kb-bukopin-tbk>
- 7) Idnfinancials. (n.d.-b). PT. Bank Pan Indonesia Tbk [PNBN] | IDNFinancials. Retrieved June 25, 2021, from <https://www.idnfinancials.com/id/pnbn/pt-bank-kb-bukopin-tbk>
- 8) Larrabee, D. T. and J. A. V. (2013). *Valuation Techniques: Discounted Cash Flow, Earning Quality, Measures of Value Added, and Real Options*. John Wiley & Sons, Inc., Hoboken, New Jersey.
- 9) Liestiyowati. (2011). *Indahnya Belajar Akuntansi: CARA 1: MENGHITUNG EVA (ECONOMIC VALUE ADDED)*. <https://akuntan-si.blogspot.com/2011/10/menghitung-eva-economic-value-added.html>
- 10) Prawiro, M. (2020). Pengertian KINERJA adalah: Indikator, Faktor yang Mempengaruhi Kinerja. <https://www.maxmanroe.com/vid/karir/pengertian-kinerja.html>
- 11) Qomariah, N. (2015). *Bank dan lembaga keuangan lain*. Cahaya Ilmu.
- 12) Redaksi WE online. (2020). Bank Panin Dongkrak Laba Bersih Jadi Rp2,33 Triliun pada Q3 2020. <https://www.wartaekonomi.co.id/read311595/bank-panin-dongkrak-laba-bersih-jadi-rp233-triliun-pada-q3-2020>
- 13) Rist, M. and A. J. P. (2015). *Financial Ratios for Executives: How to Assess Company Strength, Fix Problems, and Make Better Decisions*. Apress Media, LCC.
- 14) Economic Value-Added Analysis for the Manufacturers Alliance/ MAPI, (2011). www.evadimensions.com/mapi



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Mas Nganten's Discourse in Gadis Pantai Novel Works by Pramoedya Ananta Toer (Michel Foucault's Critical Discourse Perspective)



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ABSTRACT: The existence of the novel *Gadis Pantai*, is a form of a record of Pramoedya Ananta Toer's long journey full of information and factual data derived from in-depth research and experiences deeply rooted in his thinking so that it is interesting to study in the perspective of Michel Foucault's critical discourse. The approach used is a qualitative research approach with Michel Foucault's critical discourse analysis method. The steps taken are to identify to identify then analyzed and concluded. After being analyzed using these approaches and methods, the following results were obtained. *First*, the relationships of the *Gadis Pantai* with her parents show hegemonic-exploitative powers. *Second*, Bendoro's relations with The *Gadis Pantai* as *Mas Nganten* are the powers of inequality-exploitative, and meaninglessness. *Third*, The *Gadis Pantai*'s resistance to Bendoro is a form of open resistance *head-to-head due to* the emergence of the *Gadis Pantai*'s existential consciousness to fight for her right as a mother even though it ended in vain because the *Gadis Pantai* was powerless in the face of Bendoro's strong power. However, at least, *Gadis Pantai* has shown that women are not always the *second sex, the other, let alone Mas Nganten*, they also have rights and will always fight to determine their own destiny.

KEYWORDS: discourse, *Mas Nganten*, power relations, ideology, existential consciousness

I. INTRODUCTION

Literature studies of Pramoedya Ananta Toer's *Gadis Pantai* romance in various perspectives have been widely conducted. The results of the elaboration of several studies show that Michel Foucault's critical discourse has not been used as a knife. These studies are seen from the title quite diverse. Therefore, before the discussion of re-reading within the framework of Michel Foucault's critical discourse is carried out, it is necessary to elaborate on some previous research to show the *positioning of* this re-reading in the domain of literary studies.

Through a descriptive method, Purwantini (2015), examining priyayi behavior in the story of a mistress Bendoro santri, found that priyayi behavior which is synonymous with a feudalistic lifestyle upholds the values of customs, behaves politely and politely in speaking with subtle language is not seen in the figure of Bendoro as priyayi. Bendoro actually showed the opposite attitude and behavior: rude, barbaric, cruel and ruthless towards the woman who became his probationary wife. Purwantini, then, stated unequivocally that Bendoro's behavior undermined traditional authority for treating his mistresses inhumanely and even masked with religious faces that actually harassed the students. In contrast to Purwantini, Syukrina Rahmawati (2011), traces the identity of women as *subalterns* who are shackled in the social construction of traditional societies. Through the postcolonial *subaltern* theory initiated by Gayatri Spivak (1988) as a knife, Rahmawati found that the role of women is only determined by the ideology of priyayi or families who want their daughter's social status to be higher than that of their parents.

Rukayah (2016), questions social realism through an analysis of narrative strategies that questions the position of social realism in the third phase of Pramoedya's writing by contrasting the problems of form and content, finding the narrator's alignment in the text, although naturally there is no visible tendency. Pramoedya Ananta Toer in the novel *Gadis Pantai*, according to Rukayah, carries socialist realism which is more appropriate in terms of post-Stalin and Gorky social realism. For the same amount of money, Dufi Intan Nurkhalifah and Sri Mastuti Purwaningsih (2017), also try to read Pramoedya Ananta Toer's view of 19th century Javanese women in the novel *Gadis Pantai* using van Dick's discourse approach and Collins' theory of intersectionality. The results of these two researchers' readings show that culturally, ideologically, Pramoedya's dream is justice for women to obtain the same rights as men, social class equality in Javanese culture, marginalized class oppression, and

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patriarchal culture that positions women in chains and must be loyal and obedient to their husbands, and male relations. - Women in Javanese priyayi marriages in Pramoedya's view are very detrimental to women. Dara Windiyati (2017), reads it as an objectification of women in three propositions. First, class stratification and unequal social relations gave birth to the objectification of women because of the position of women as objects and men as subjects. Second, the weak role of women in society. Third, the objectification of women always leads to violence. Meanwhile, Suminto (2008), criticizing one side of Javanese feudalism, which had a violent character, was reflected in social relations in the unequal structure of Javanese society at that time with an analysis of Levi-Strauss' structuralism. The results of Suminto's critical study present a story and news about the Girl Beach trial marriage is nothing more than a practice of polygamy that characterizes the game of men and the acceptance of women in coercion. The binary opposition initiated by Levi-Strauss places the Gadis Pantai versus Bendoro in a colorful opposition frame of slavery (sex) that does not respect human values. Divorced unilaterally due to the weak bargaining position of the Gadis Pantai, expelled, forcibly separated from the newborn child, even condemned by Bendoro because Bendoro's position as a priyayi is inversely proportional to the Gadis Pantai's position as a little Wong alias *tiyang alit*. However, Yunita Anas Sriwulndari (2014), shows that as a little Wong and in a dishonorable position, as the main woman in the concept of Javanese women, Pantai Girl always shows the attitude of Nrima, an inner attitude that upholds Javanese cultural values. Meanwhile, Annisa Maulida Salamah (2020), reading the main woman (good wife) Gadis Pantai is as valuable as Ryou sai in Japanese tradition and occurs at almost the same time. Gadis Pantais always show the attitude of Nrima, an inner attitude that upholds Javanese cultural values. Meanwhile, Annisa Maulida Salamah (2020), reading the main woman (good wife) Gadis Pantai is as valuable as Ryou sai in Japanese tradition and occurs at almost the same time. Gadis Pantais always show the attitude of Nrima, an inner attitude that upholds Javanese cultural values. Meanwhile, Annisa Maulida Salamah (2020), reading the main woman (good wife) Gadis Pantai is as valuable as Ryou sai in Japanese tradition and occurs at almost the same time.

Interesting studies and arguments shown by Eva Leiliyanti and Eka Nurcahyani (2015). Although the Beach Maiden, the fishermen, and the sahaya as representations of the *little Wong* aka *tiyang alit* in the feudal system are positioned below the priyayi, if examined more carefully and carefully, their position is actually higher in the lens of socialism. The ceritemes presented along the torso of the novel show that acts of violence, discrimination, subordination, marginalization, destruction of the dignity of humanity, and various acts of dehumanization of the like do not make them lose their humanistic side. What is interesting is the argument that these two researchers built that the narrator was stuck in Geertz's proposition of *santri-abangan-priyayi*, which had actually failed from the beginning because it posited the priyayi as one of the religious groups not a social group, then seemed to place the abangan group represented through the Figures of the Beach Maidens, the fishermen, and the sahaya more dignified than the priyayi. In fact, the synthesis of socialist-feudal-religious values within the framework of establishing a structure of harmony or inter-class harmony also fails miserably.

The different position of this study from several previous studies as presented lies in the focus of the study which wants to detect the forms of power relations that gave birth to the ideology of The Gadis Pantai not only in fighting for her rights as a mother of a newborn child but also as *Mas Nganten*.^[1] Dismantling the ideology that had constructed the realm of the mind and inflamed the courage of the Gadis Pantai to dare *to speak head-to-head* with Bendoro. This study is within the lens of Michel Foucault's critical discourse.

II. METHOD

This research uses a critical paradigm, because it wants to disassemble thoroughly by paying attention to the historical, socio-cultural-economic context of the text under study. This step is taken because it is to define the structure of discursive relations that form the consciousness of subjects that are (not) autonomous. Therefore, it is very reasonable to use a critical discourse approach, especially initiated by Michel Foucault in archaeology and genealogy. These two key terminologies of Foucault, according to Scheurich and McKenzie (2012:219 in Abadi, 2017:170), can be understood in a broader perspective as qualitative methods because they always use text as data. In addition, to detect relations and the appearance of discursive effects of any power discourse to develop a correct understanding of the complexity of concepts that are intertwined with the discursive structures and relations contained in the data source. This step of work in Foucault's perspective is not only interpretive but also explanatory because it aims not only to explain but also to obtain an overview of the *setting of* events and the causes and effects that accompany them.

The source of the research data is the romance *Gadis Pantai* by Pramoedya Ananta Toer, which was republished by the publisher Lentera Dipantara, Jakarta, fourteenth printing, 2021. Roman *Gadis Pantai* was chosen as the source of research data because it is thick with the structure and discursive relations of power in the perspective of critical discourse. Meanwhile, the research data is in the form of segments or fragments of the ceriteme text of the *Gadis Pantai* romance which prominently

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displays the discursive structure and relations of power. The data was netted using documentation techniques consisting of literature study techniques and note-taking techniques. Furthermore, it is analyzed with interpretive descriptive analysis techniques.

III. DISCOURSE CONCEPT AT A GLANCE

From the beginning Foucault had realized there was almost no possibility of an exact definition for the term discourse. Some interpret *discourse as ways* of producing knowledge and accompanying social practices, the forms of subjectivity that are formed, the power relations that occur behind social knowledge and practice, and the intertwining between all these aspects. ¹²¹ Discourse is an attempt to break away from oppression. The content of the discourse is something that does not describe the real reality, like myth, that is, the human effort to neutralize the fear and pressure of those who are seen as having higher authority. Foucault used discourse as a substitute for ideology to avoid the rampant general understanding that developed among experts. In Foucault's understanding, the main emphasis is on the problem of language, because however power relations also use language, the result is also language, so the term discourse is seen as more appropriate to use than ideology because of the emphasis on language problems (Eagleton, 1991 in Takwin, 2003:109—110).

The emergence of discourse in the perspective of Foucault (1977 in Takwin, 2003:110), is the result of power relations as something that inevitably occurs in society. What needs to be done is to accept the various discourses and understand the influence of the discourses in human consciousness while realizing that each discourse carries its own truth and therefore cannot be claimed to be the most correct. Any discourse that arises must be viewed as a feature of the heterogeneity of human thought that deserves a place in human consciousness with its own truth and untruth. Any discourse is not an absolute truth, not a representation of actual reality, but rather a human reaction to what happens to it, a reaction to the power that constrains it (Foucault, 1981; Hawkes, 1996 in Takwin, 2003:110—111).

As a result of the process of the dynamics of the development of human civilization, the discursive relations of power and oppression have so far given birth to various thoughts, one of which according to Foucault (Takwin, 2003:111), is the consciousness of appreciating *the other* or *liyan* (in Goenawan Mohamad's terms). Awareness of the things that are left aside (things, people, tribes, cultures) will greatly help man understand his life. The realization of the existence of the other or other with one's own thoughts on *the* one hand and ourselves on the *other* is inevitable. This kind of awareness will eventually give birth to an awareness of the diversity of human beings who respect each other instead of blaspheming each other let alone degrading each other because they view the other or *others* as hell, *the other is hell*, as Jean Paul Sartre's thesis (Bering, 2008; Nugroho, 2013; Onwuegbuchulam, 2014; McLachlan, 2015).

Indeed, Foucault does not deny the existence of subjectivity in a philosophical framework. Sorting practices in the form of binary oppositions such as good-bad, right-wrong, high-low are determined by knowledge and power. Knowledge is determined by power. Truth will refer to a 'regime of righteousness' that is on the throne. Truth is the result of the dynamics of the function of power (Foucault, 1977 in Takwin, 2003:111). Determination of illness-health, right-wrong, good-bad, and so on is determined by the ruling party as a discourse that is 'forced'. Knowledge and other discourses according to Foucault come from power relations (Takwin, 2003:111-112). According to Foucault, one of the most significant forces shaping our experience is language, because we not only use language to explain ideas and feelings to others, but also to explain them to ourselves. Not only are we programmed or driven and controlled by instincts, but our thoughts and actions are influenced, regulated, and controlled by how much these discourses present to us. A person, for example, who has been indoctrinated to obey, obey, and identify himself with a company and its discourses, values, and ways of doing things in the company such as placing profit, productivity, and economic rationality above human life, the person will think that he is acting as a free individual, but then it becomes clear when the company dumps him, and he begins to ask what happened to him (Adian, 2011:140-141). Of course he wanted freedom, but he wasn't anthropocentric. "For a long time," said Foucault, "one of the privileges of the power of power is its right to determine death and life" (Foucault, 1980:133 in Shimogaki, 2001:33).

The exercise of power is not through violence or consent, but the entire structure of action that suppresses and encourages other actions through stimulation, seduction or through coercion and prohibition. Power is not repression or a struggle for power, nor is it a function of one-class donation based on economic domination or ideological manipulation. According to Foucault, power "must be understood first of all the many and varied power relations inherent in the sphere of these relations and their organization. The game will change, strengthen, reverse those relationships through constant struggle and struggle." Power means silent war, which places conflict in various social institutions, in economic inequality, in language, even within each of us (Haryatmoko, 2016:14-15). "Truth does not exist by itself. Truth is not out of power, it is in power." "Truth is power" (Foucault, 1980:133 in Shimogaki, 2001:32). Foucault, then makes five important characteristics of the "political

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economy" of truth, namely (1) truth is centered on the form of scientific discourse and the institutions that produce it, (2) truth is subject to constant economic and political stimulation, (3) truth is the object of great diffusion. mass consumption and massive consumption, (4) truth is produced and transmitted under the central and dominant—if not exclusively—of a few large political and economic apparatuses, and (5) truth is the problem of the whole political debate and social confrontation or struggle. "ideological" (Foucault, 1980:131-132 in Shimogaki, 2001:32). Truth is not out of power, it is in power." "Truth is power" (Foucault, 1980:133 in Shimogaki, 2001:32). Foucault, then makes five important characteristics of the "political economy" of truth, namely (1) truth is centered on the form of scientific discourse and the institutions that produce it, (2) truth is subject to constant economic and political stimulation, (3) truth is the object of great diffusion. mass consumption and massive consumption, (4) truth is produced and transmitted under the central and dominant—if not exclusively—of a few large political and economic apparatuses, and (5) truth is the problem of the whole political debate and social confrontation or struggle. "ideological" (Foucault, 1980:131-132 in Shimogaki, 2001:32). he is in power." "Truth is power" (Foucault, 1980:133 in Shimogaki, 2001:32). Foucault, then makes five important characteristics of the "political economy" of truth, namely (1) truth is centered on the form of scientific discourse and the institutions that produce it, (2) truth is subject to constant economic and political stimulation, (3) truth is the object of great diffusion. mass consumption and massive consumption, (4) truth is produced and transmitted under the central and dominant—if not exclusively—of a few large political and economic apparatuses, and (5) truth is the problem of the whole political debate and social confrontation or struggle. "ideological" (Foucault, 1980:131-132 in Shimogaki, 2001:32). he is in power." "Truth is power" (Foucault, 1980:133 in Shimogaki, 2001:32). Foucault, then makes five important characteristics of the "political economy" of truth, namely (1) truth is centered on the form of scientific discourse and the institutions that produce it, (2) truth is subject to constant economic and political stimulation, (3) truth is the object of great diffusion. mass consumption and massive consumption, (4) truth is produced and transmitted under the central and dominant—if not exclusively—of a few large political and economic apparatuses, and (5) truth is the problem of the whole political debate and social confrontation or struggle. "ideological" (Foucault, 1980:131-132 in Shimogaki, 2001:32).

IV. RESULTS AND DISCUSSION

The Relationships of the *Gadis Pantai* with Her Parents

Gadis Pantai discourse began when she was 14 years old, when she was married by her parents to someone who was secretly interested in the beauty of *Gadis Pantai* who became the flower of a fishing village on the coast of the Jepara Rembang residency, who was later found to be a Bendoro. The marriage was performed not with Bendoro as the bridegroom as is generally the marriage performed by society but with a dagger as a representation of Bendoro. The fact of literary anthropology recorded in the *Gadis Pantai* romance is undoubted because according to some reliable sources it is mentioned that in the late 19th and early 20th centuries marriages were performed often the bride and groom did not know each other or did not know each other, because generally the parents of the bride and groom played a big role in matching their children.

In her ignorance of the meaning of a marriage the *Gadis Pantai* tried to put up resistance by crying—a form of resistance that did not resist—all the way to Bendoro's house with two "kretek" dokars accompanied by her father and mother, her uncle, several siblings, and of course her village head. The *Gadis Pantai*'s tears were unbearable and dripping down her face wrapped in thick powder so that it was streaked and twisted, while her mother always fixed it back while reminding her that the *Gadis Pantai* would not cry because she would be the wife of a Magnate, the wife of a rich man and live in a large building not in a hut, although the *Gadis Pantai* didn't quite know what she was going to face. It only knows that it will lose its entire world.

"Shhh. Don't cry. Don't cry. Today you are the wife of the magnate." He didn't know what was in front of him. It just knows: it lost its entire world.

"Shhh. Don't cry. From today you live in a big building, boy. No longer in the hut. You no longer on the beach. You're no longer sewing screens and nets, but silk, boy. Shhh, shhh. Don't cry."

"Shhh. Don't cry, kid. Today you become the wife of a rich man." He sobbed, sobbed, finally howled (Ananta Toer, 2021:12).

The ceriteme-ceriteme in the aforementioned quote shows the building of the *Gadis Pantai*'s relationship with her parents. A power relation featuring *Gadis Pantai* being in a position of invincibility and marginalization in the power of her parents.

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Became the subject of hegemony of his parents, who in the language of Antonio Gramsci belonged to the inferior group, colonized girls. In the language of Gayatri Chakravorty Spivak, the group that does not obtain justice, is ignored in the context of life and forgotten by the ruler (Nasution, 2016:39). As a colonized woman, Gadis Pantai has no room to speak. Within the power of her parents, the Gadis Pantai could not speak only to express rejection or request. Her mother's attitude and behavior in seducing the Gadis Pantai not to cry is a pattern to narrow the space for the Gadis Pantai to move (Nasution, 2016:41), because she will be the wife of a dignitary, the wife of a rich, honorable person, and live in a large and luxurious building is no longer a hut in a fishing village. In his parents' minds and wishful thinking their degrees would be lifted and their lives would be much more prosperous. That is why, her father so fiercely forced her to marry Bendoro. In the view of her parents (also a native person), marrying a nobleman was something special.

It can be said that such a pattern of marriage is nothing more than a pattern that shows an exploitative form of power relations towards women, because the Gadis Pantai is the helpless party on the one hand and her parents who impose the will to marry her to Bendoro on the other, as the ruling party over her daughter. The Gadis Pantai is a symbol of a traditional village girl who is obedient and obedient to her parents. As a traditional village girl, the Gadis Pantai actually has a number of characteristics that can be identified such as simple, free, idealistic, and even ascetic. In contrast to the inherent characteristics of both parents such as materialists, hedonists, realists, servants of honor, and imposing the will. The oppression experienced by The Gadis Pantai as a result of her parents' power shows that power can happen anywhere and anytime without knowing time and space because power is scattered everywhere following the corners-space-time of human existence. Where there is a relation there is power. It must happen and does not depend on human consciousness. Power is just a strategy, there are systems, rules, and regulations. Power is not grafted from the outside but operates from within and determines all the arrangements, rules, and regulations that allow everything to happen (Foucault, 2000:144 in Afandi, 2012:140).

Bendoro's Relationship with Mas Nganten

At the beginning of her existence in Bendoro Gadis Pantai's house, she did not understand her status whether as a wife (empress) or just a sahaya, especially with the call of *Mas Nganten*. The Gadis Pantai's question to Bujang about "Who is Mas Nganten?" shows the Gadis Pantai not knowing about *Mas Nganten*. The Gadis Pantai only knew from the Village Chief that she had been married to a dagger.

"Mas Nganten? Who is Mas Nganten?"

The footman chuckled with a suppressed chuckle. He looked at his new, overly young master, caressed his slippery chin like a catfish's head. And finally with the master of a finger he pointed the finger at the chest of the person he was talking to.

"Sahaya?" (Ananta Toer, 2021:26-27).

Although Mas Nganten was legally married according to "customs", Bendoro's treatment as *Mas Nganten's* husband was only limited to meeting biological needs. Mas Nganten treated Bendoro dishonorably because although Mas Nganten's position as a wife but in Bendoro's view as a priyayi, Mas Nganten was still a *Mas Nganten*, only sahaya, servant, servant who was only limited to serving Bendoro's sex needs.

"One who is not born in the other, but a woman" (de Beauvoir, 1949 in Zuhry, 2019). One is not born in another, but she is a woman. *Mas Nganten's* presence was actually constructed, printed, and shaped by Bendoro to become the *other, the Liyan*. Be *Mas Nganten* a woman who is oppressed, imprisoned and deprived of the structure of equality. *Mas Nganten* later became the *other, the Liyan*, who was not only different, but indeed discriminated against by Bendoro, both personally and in the form of systems and values.

The power-relation that has been built between Bendoro and Mas Nganten shows a relationship that is not only exploitative but also a relation of inequality, even more than that, it is a meaningless relation. As Mas Nganten, the Gadis Pantai has no right to herself, her body, mind, even politeness must conform to the traditions built in Bendoro's house as priyayi. Mas Nganten seems to have no "presence", because the one who gives "meaning" is Bendoro, so he does not have the freedom, equality and nobility of dignity as a human being. Mas Nganten's body is nothing more than an object of sexual desire and Bendoro's masculinistic behavior. During his time as Bendoro's mistress, Mas Nganten seemed to have been and continues to be on the edge of male history, on the edge of Bendoro's daily life. Bendoro's perspective and treatment of Mas Nganten, which is very masculine, seems to revive the thoughts of classical philosophers, especially Socrates, Plato, and Aristotle who have positioned women as the second sex in a rational system. Even in the Greek polis, women were not citizens, because polis meant the country of men. Women are then positioned as nothing more than slaves, and there is absolutely no rationality in the existence of noble creatures named women. In Java, women are only 3-M: cook, macak, and manak. Even more painful is that the woman's role is limited to the bed, in the well, in the kitchen, and then in the grave. Theklek clouds are soft, footwear during

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the day, bedding at night (Setiawan, 2012 in Anindya, 2019). and Aristotle who has positioned women as the second sex in a rational system. Even in the Greek polis, women were not citizens, because polis meant the country of men. Women are then positioned as nothing more than slaves, and there is absolutely no rationality in the existence of noble creatures named women. In Java, women are only 3-M: cook, macak, and manak. Even more painful is that the woman's role is limited to the bed, in the well, in the kitchen, and then in the grave. Theklek clouds are soft, footwear during the day, bedding at night (Setiawan, 2012 in Anindya, 2019). and Aristotle who has positioned women as the second sex in a rational system. Even in the Greek polis, women were not citizens, because polis meant the country of men. Women are then positioned as nothing more than slaves, and there is absolutely no rationality in the existence of noble creatures named women. In Java, women are only 3-M: cook, macak, and manak. Even more painful is that the woman's role is limited to the bed, in the well, in the kitchen, and then in the grave. Theklek clouds are soft, footwear during the day, bedding at night (Setiawan, 2012 in Anindya, 2019). and there is absolutely no rationality in the existence of a noble being named woman. In Java, women are only 3-M: cook, macak, and manak. Even more painful is that the woman's role is limited to the bed, in the well, in the kitchen, and then in the grave. Theklek clouds are soft, footwear during the day, bedding at night (Setiawan, 2012 in Anindya, 2019).

Without seeing the feeling of it the person opened the mosquito net and he heard a whisper of pelahan:

"Mas Nganten."

It felt like millions of ants were swarming at every point of their skin.

He did not answer. "Mas Nganten," once again.

Like an automaton doll it moves centered in the direction in which the sound comes. Then sat bent over both hands on the mattress.

"Sahaya Bendoro," he whispered.

"I am your husband."

"Sahaya Bendoro" (Ananta Toer, 2021).

Bendoro's relations with *Mas Nganten* were not in the sense of a husband-wife relationship but a slave relationship with the master. A power relation that shows *Mas Nganten* is in a slavery relationship that only acts as a satisfying of his master's (Bendoro) sex lust. Bendoro's statement that he is *Mas Nganten*'s husband is only limited to justifying his presence in *Mas Nganten*'s existence that it is legally valid, because he is a husband.

A husband-wife relationship is a relationship of equality. There is a formed sense that the wife becomes aware of where the husband is going so on the contrary the husband must know where his wife is because the two are three pennies, there is an understanding. While the following days *Mas Nganten* was at Bendoro's house never once *did Mas Nganten* know where Bendoro was, her husband went. The days Bendoro left and did not return home made *Mas Nganten* uneasy, there was a growing sense of longing. And, when he asked him about it, he got an answer that suggested that women did not deserve to take care of men's work.

"... Where does Bendoro usually go - until these days?"

"Ah, Mas Nganten, that's a man's business with his work, don't interfere, because women don't know anything about it. We only know our own area: the households we have to take care of" (Ananta Toer, 2021).

Mas Nganten's role and duties are only limited to doing work as *Mas Nganten*, namely learning to recite, embroider, and especially serving Bendoro's sex needs. This shows that *Mas Nganten* experienced moral oppression because he was confined to Bendoro's house and had to give up everything he dreamed of, as a result of gender-biased relations. *Mas Nganten* did not serve Bendoro as her husband but rather served her master. In Bendoro's shells there is no other responsibility from Bendoro besides educating *Mas Nganten* as a mistress (sex slave) to behave and behave like priyayi because she has been part of Bendoro's relatives for a while before being "banished" if she has given birth to a child. The same fate was also experienced by Bendoro's mistresses before the *Gadis Pantai*.

Gadis Pantai Resistance: An Existential Struggle

Starting from a unilateral divorce after The *Gadis Pantai* gave birth to a baby girl that Bendoro didn't want, the *Gadis Pantai* experienced a violent psychological shock until her body sucked and fell when she found out from her father that she had been divorced by Bendoro, her husband (her master). Not only because of a unilateral divorce, Bendoro's ban on keeping *Gadis Pantais* from bringing their children home is another far greater blow than just divorce. Which woman's heart is not shaken

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when she learns that a child born with a struggle between life and death is not allowed to be nurtured by her own mother. In addition to being expelled, Bendoro was also cursed if the Gadis Pantai dared to go to Bendoro's house to visit his son. This was done by Bendoro because usually every village girl who is used as a mistress if she has given birth to a child must be divorced and no longer entitled to live in Bendoro's house.

The Gadis Pantai then appears no longer as *Mas Nganten* but as a woman, as a mother who has just given birth to a baby girl and fights for her rights as a mother. In the perspective of body philosophy developed by Friedrich Wilhelm Nietzsche (October 15, 1844–August 25, 1900) and Jean-Paul Sartre (June 21, 1905–April 15, 1980), the Gadis Pantai underwent an existential change from the self as the body to the self as the soul, from the body as the enemy looked down upon to the body as the self; from mind as spiritual to mind as material (Synnott in Saptandari, 2013:61). The appearance of The Gadis Pantai putting up a *head-to-head* resistance to Bendoro over custody of her child fearlessly confirms Foucault's thesis, that power does not always give birth to obedience but also resistance. Power and resistance or anti-power are two entities that are not separated because resistance is not outside power but exists within power-relations (Kamahi, 2017). Resistance is the biological child of power. The greater and stronger the power launches strategies by repressive or normalizing and regulative ways the chances of the emergence of resistance are greater and stronger (Taufik & Afandi, 2014). As a form of power politics technology, resistance becomes an inseparable entity from power-relations (Heraini, 2012).

"A thousand pardons, Bendoro."

"A thousand pardons, I have come to hand over my son, my own son, not someone else's son, Bendoro. Please accept him, Bendoro."

"Put it on the bed!"

"Impossible, sir."

"Didn't you hear my orders?"

"From when did you have the memory of wanting to run this baby?"

"Go!"

"Hold him!" cried Bendoro, waving his wand.

"Not my thief!" Shouted the Gadis Pantai loudly.

"I only brought my own baby. My baby! My own baby.

He is my son, his father is a devil, the devil. Let go!"

Someone hit his mouth until it bled. Still heard people whispering in his ear, "You just got hit a little"(Ananta Toer, 2021).

Foucault, said that there are two forms of contradictory resistance according to the spirit of the context, namely rebellion and self-isolation (Holif in Agustin, 2018). Resistance in the form of rebellion can take the form of (1) closed resistance (symbolic or ideological) such as gossip, slander, rejection of forced categories and loss of respect for those in power; (2) semi-open resistance (social protests or demonstrations); and (3) open resistance, a form of resistance that is systematic and organized and has principles. Its manifestation is by means of violence, both physically and verbally, such as slapping, slapping, spitting, throwing, yelling, cursing, insulting, shouting, isolating, glaring, sneering, and looking full of hatred and threats (Scott in Agustin, 2018).

The Gadis Pantai's fight against Bendoro, who was so heroic that he was bloodied because he was surrounded by male and female bachelors on Bendoro's orders, was not over yet. The Gadis Pantai still has to accept the harsh and sadistic treatment from Bendoro and the bachelors for throwing the Gadis Pantai out of the house and then being helped by someone and carried on a cart waiting to be taken away from Bendoro's house.

"Don't walk yet, man!"

"Why you, son?"

"No, father, I'm not going back to the village. I want to go far!" "Son."

"Forgive me, father. I can't talk about mama's eyes, the neighbors and all. Forgive me, father. I'll go take myself."

"Just give me some money, father."

... The Gadis Pantai took a whip and whipped the horse from under her belly. The horse jumped and ran. The wheels rolled down the sandy road, sprinting towards the postal road. Without looking back Gadis Pantai focused her eyes forward(Ananta Toer, 2021).

The Gadis Pantai's decision not to return to her hometown was not only driven by shame to the villagers after being evicted from Bendoro's house but rather by the emergence of awareness in the Gadis Pantai that the "defeat" she received from Bendoro was not the end of everything. Gadis Pantai seem to want to show that women are also able to live independently with their own abilities without having to accept mercy and help from men. Girls Beach believes that when she is separated

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from marriage and oppression from Bendoro, it does not mean that she is down. As if affirming the ideology of women's struggle that has been echoed by feminist fighters, especially radical and existential feminists. A free choice as a form of the Gadis Pantai's subjectivity as a woman.

V. CONCLUSIONS

Roman Girls Pantai by Pramoedya Ananta Toer with the theme of differences in social status giving birth to inequality as a major theme. Meanwhile, power blinds a Bendoro's heart, and lack of courage or inability to resist arbitrary power results in regret as a minor theme.

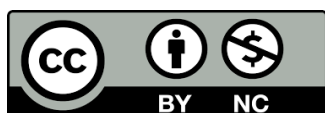
The power-relationship between the Gadis Pantai and her parents is an exploitative power relation because the Gadis Pantai's parents force their will and the Gadis Pantai is powerless to face the pressure of her parents. The power relations that exist between Bendoro and Gadis Pantai as Mas Nganten show a power relationship that is not only exploitative but also power relations inequalities due to different social status factors, giving birth to forms of power relations that are meaningless in Mas Nganten's life. Meanwhile, the Gadis Pantai's resistance to Bendoro is a form of open resistance head to head due to the emergence of the Coastal Girl's existential awareness to fight for her rights as a mother even though it ends in failure because the Gadis Pantai is powerless to face the mighty power of Bendoro and his bachelors.

REFERENCES

- 1) Abadi, HS 2017. The Power of Sexuality in Novels: Michel Foucault's Critical Discourse Analysis Perspective. *Journal Name does not exist*, 2 (2): 167—178.
- 2) Adian, DG 2011. *After Marxism: A Number of Contemporary Ideological Theories*. Printing I. Depok: Koekoesan.
- 3) Afandi, AK 2012. The Concept of Power of Michel Foucault. *Theosophy: Journal of Sufism and Islamic Thought*, 2 (1): 131—149.
- 4) Agustin, SR 2018. *Analysis of the Critical Discourse of Resistance in the SeBumi Mural (Discussion of Resistance in Rejecting the Establishment of PT Semen Indonesia's Factory in Rembang)*. Publication manuscript. Department of Communication Studies, Faculty of Psychology and Socio-Cultural Sciences, Islamic University of Indonesia, Yogyakarta.
- 5) Anindya, B. 2019. *Shoe Memoirs: A Imprint of Reality Between the Well, Kitchen, and Mattress*. Publication manuscript. Creation and Postgraduate Study Program of the Indonesian Institute of the Arts Yogyakarta.
- 6) Bering, JM 2008. Why Hell Is Other People: Distinctively Human Psychological Suffering. *Review of General Psychology*, 12(1):1—8.
- 7) Foucault, M. 2011. *Knowledge and Methods: Foucault's Important Works*. Arief Translator. Yogyakarta: Jalasutra.
- 8) Foucault, M. 2012. *Archeology of Knowledge*. Inyik translator Ridwan Munir. Yogyakarta: IRCiSoD.
- 9) Haryatmoko. 2016. *Dismantling the Regime of Certainty: Post-Structural Critical Thinking*. Yogyakarta: PT Kanisius.
- 10) Heraini, N. 2012. *The Meaning of Resistance Values in Hip Hop Culture (Analysis of Reception Studies of Monkiez Hip Hop Dance Group Members on the Concept of Resistance)*. Thesis. Faculty of Social and Political Sciences, Department of Communication Studies, Postgraduate Program, University of Indonesia.
- 11) Junaedi, F. 2019. *An Introduction to Understanding Critical Discourse Analysis*. Paper. Delivered in a Guest Lecture of the Master of Communication Studies Program, Atma Jaya University Yogyakarta, 16 May 2019.
- 12) Kamahi, U. 2017. Michel Foucault's Theory of Power: The Challenge of Political Sociology. *Journal of Al-Khitobah*, Volume 3, pp: 117—133.
- 13) Leiliyanti, E. & Nurcahyani, E. 2015. Representation of Pancasila Discourse in Gadis Pantais by Pramoedya Ananta Toer. *International Seminar on Literature. Our Literature: Now, Then, and Later*. Editor Resti Nurfaidah, et al. Bandung: No publisher name.
- 14) Mclachlan, J. 2015. Hell Is Others and Paradise Is Others: Hell in the Existential Paris of Sartre and Berdyaev. In the book: *The Concept of Hell*, pp. 32-48. DOI: 10.1057/9781137455710_3.
- 15) Nugroho, WB 2013. *Other People Are Hell: The Sociology of Existentialism Jean Paul Sartre*. Yogyakarta: Student Library.
- 16) Nurkhalifah, DI & Purwaningsih, SM 2017. Pramoedya Ananta Toer's View of 19th Century Javanese Women: Analysis of the Gadis Pantai Novel. *AVATAR, Historical Education e-Journal*, 5 (1): 122—136.
- 17) Onwuegbuchulam, SPC 2014. Hell is Other People: A Critical Appraisal of Sartre's Notion of The Individual's Relation to the other in the Light of the Notion of Ubuntu. *Journal on African Philosophy*. Issue 9.
- 18) Purwanti. 2015. Representation of Priayi's Behavior in the Novel Gadis Pantai: The Story of a Mistress of Bendoro Santri. *ATAVISM*, 18(1):31—44.

Mas Nganten's Discourse in Gadis Pantai Novel Works by Pramoedya Ananta Toer (Michel Foucault's Critical Discourse Perspective)

- 19) Rahmawati, S. 2011. The Identity of Women Who Are Shackled in a Gadis Pantai by Pramoedya Ananta Toer: Subaltern in the Social Construction of Tradition Society. *Mabasan*, 5 (2): 80—93.
- 20) Rukayah. 2016. Questioning Social Realism in the Novel Gadis Pantai by Pramoedya Ananta Toer with Analysis of Narrative Strategy. *Journal of Educational Publications*, VI (1): 14—23.
- 21) Salamah, AA 2020. The Value of Ryou sai (Good Wife) of the Edo Period in Pramoedya Ananta Toer's Novel Girl Beach by Pramoedya Ananta Toer (2000). *JANARU ONLY*, 9(1):18—30.
- 22) Suminto. 2008. Pramoedya Ananta Toer's novel Gadis Pantai: Structural Analysis of Lévi-Strauss. *Journal of Religious and Society Studies*, 2 (1): 33—55.
- 23) Shimogaki, K. 2001. *The Islamic Left: Between Modernism and Postmodernism*. Print V. Translator, M. Imam Aziz and M. Jadul Maula. Yogyakarta: LKiS.
- 24) Sriwandari, YA 2014. The Image of the Main Female Character in the Novel Gadis Pantai by Pramoedya Ananta Toer. *NOSI*, 2(2): 125—130.
- 25) Takwin, B. 2003. *The Roots of Ideology: An Introduction to the Study of Ideological Concepts from Plato to Bourdieu*. Yogyakarta: Jalasutra.
- 26) Taufik, M. & Afandi, MA 2014. Student Movement Resistance to Educational Capitalism. *Journal of Paradigms*, Volume 2, pp: 1—13.
- 27) Windiyati, D. 2017. The Novel Girl's Beach by Pramoedya Ananta Toer: The Objectification of Women by Men. *SEMIOTICS*, 18(1):1—13.



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Facial Mask Detection Using Transfer Learning with Resnet18 and MobileNetV2



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ABSTRACT: Identification of individuals using face masks has become a widespread concern as a result of the coronavirus pandemic. One critical method of preventing pandemic spread is for persons to constantly wear masks in public places. To achieve the maximum possible accuracy, new approaches for face mask detection are being developed that utilize convolutional neural networks. These novel techniques attempt to construct a binary face classifier capable of categorizing pixels in an image as either faces or non faces. In this study, we created a model using Resnet18 and MobileNetv2 in order to obtain trustworthy results for picture categorization. Additionally, we constructed our model for detecting live webcam feeds utilizing Transfer Learning on these deep convolutional neural networks, as well as ImageNet weights and OpenCV.

KEYWORDS: Face mask detection, Image classification, MobileNetv2, ResNet18, Semantic segmentation, Transfer learning.

1. INTRODUCTION

These days, face recognition is commonly used as the human face's primary biometric feature. Face detection, identification and differentiation is assurance of several approaches to one of the main areas of study for focused areas like legal applications where offenders or publications can be identified using their live features, actions and characteristics [1] [2] [3]. Face detection is also used for security, like in face locks etc. which pick out specific, distinctive details about a person's face, like distance between eyes etc. and convert it into mathematical representation. Another major use is in the police department where face detection can be used to find missing persons. Thus, face detection and recognition is described as a very important issue in image processing and computer vision [4]. Following the discoveries in face detection, the latest discoveries are for face mask detection where a person's face is detected and classified whether they are wearing a mask or not. Owing to the recent COVID19 times, the need for a face mask detector is of utmost importance, especially in public places. Since there are no available vaccines for COVID19 and our only hope is to wear a mask in public places at all times, the face mask detector, which was previously of no use, has become a necessity to keep people in check. As a result, the motivation for this project stems from the fact that the COVID19 pandemic is spreading and claiming the lives of hundreds of thousands of people every day. So far, there are no reports about any cure or vaccine being available for the disease. WHO is now suggesting that individuals wear face masks to avoid the risk of virus transmission [5]. Furthermore, this project is a step towards ensuring that precautions are taken by people to stop the spread. In this paper, we will be performing detection on live webcam feed with the help of convolutional neural networks and transfer learning to detect faces with masks and generate accurate results. CNNs such as Resnet18 and MobileNetV2 will be trained on various datasets such as the Real-World Face Mask Dataset, Wider Face Dataset, and others to provide us with a model capable of accurately detecting faces with and without masks. Multiple datasets are used to verify the accuracy of our model in all conditions. The rest of the paper is outlined as: Section I gives a reference to the progress currently made in face mask detection and the current research so far on which we plan to expand and build. Section II outlined the related works. Section III suggests the possible methods this paper will experiment with to build upon existing research so as to improve the current face mask detection scenario with reference to our future solutions we plan on implementing. While section IV contains the result of our experiment and discussion showing the accuracy of our model and the prediction it has made on our faces in real time. In section V, the implementation of our paper in the future and the research possibilities we will be exploring will be mentioned alongside our promising results.

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2. RELATED WORKS

Face mask detection means finding the face of a person and classifying the face of a person as with a mask or without a mask. There has been a lot of development in the field of face detection. For example, the Viola Jones detector uses concepts of Haar-like features, AdaBoost algorithm, cascade classifier and integral imaging for detection. In the past, when there were no methods to develop feature extractors, the features were learnt using neural networks end to end. Object detection using deep learning is done by two families: the first is the Region CNN [6]. or the RCNN and the second one is the YOLO (You Only Look Once) family. The RCNN family uses two stage object detectors and therefore provides much more accurate results as compare to the YOLO family which uses one stage object detectors. But the YOLO family works faster than the RCNN family and is therefore used for detection in real time. In the same way, face detectors use similar architecture but with more face-related features. However, there is little research about face mask detection instead of just face detection. Current research about facial recognition and facial mask detection includes Deep Dense Face Detector (DDFD). It is a method that can detect faces in various angle ranges even when the faces are covered with obstacles like hands. It does not require pose/landmark annotation and is able to detect faces .It uses a single model based on deep convolutional neural networks [3]. A covered face is detected using skin ratio on each side of the head. To check the accuracy of this method, a human head(covered or uncovered) is taken from any angle and the space between -90 degrees to +90 degrees around the head is checked [7].

Current research about facial mask detection highlights methods like ResNet used as backbone, SSD and FPN as neck, that are able to extract high-level semantic information and then mix this information with the feature maps of previous layers [4]. and in other places where a hybrid model was developed using deep and classical machine learning for face mask detection is presented using Resnet50, decision trees, Support Vector Machine (SVM) [8]., and ensemble algorithm. Given that the testing accuracy for DS1 ranged from 93.44 percent using the decision tree classifier and 99.64 percent using the ensemble classifier, this approach turned out to be highly successful. For DS4, using the decision tree classifier, the testing accuracy ranged between 99.76 percent and 100 percent using the SVM classifier [8]. Other studies have even presented the use of lighter backbones, such as the MobileNetV2 architecture, which provides a significant cost and computational advantage over the standard 2D CNN model. The process also involves the SSD MultiBox Detector such as ImageNet and PascalVOC which classifies images which are high quality [5], and the predefined training weights of VGG16 architecture are excellent methods to make predictions alongside feature extraction which creates two channels in the data, one for background and other for face. These models were designed in a manner that all the incorrect predictions were not taken into account while showing the result of the detection phase. This was done by first passing using the Median filter and the Closing Operation. The semantic segmentation via FCN [9]. Establishes the facial spatial position with a specific mark. In a single frame, the model can detect multiple facial masks. Post processing gives a significant boost to the precision of the pixel level [10]

3. THE PROPOSED APPROACH

In this paper, we make the use of concepts like convolutional neural networks and attention block modules, which play a bi-fold role in developing a model using Resnet18 and transfer learning to generate accurate results with the help of image classification. This method was found to be better than other models we researched about, like the predefined VGG16 architecture, which is a convolutional neural network model. Even though the VGG16 architecture is distinguished by its simplicity, using only 3x3 convolutional layers with 16 layers of weight stacked in increasing depth on top of one another. Volume size reduction is handled by max pooling. A Softmax classifier is then followed by two fully-connected layers, each with 4,096 nodes [11]. The use of Resnet is preferred due to its ability to solve the problem of vanishing gradient and its ability to find simpler mappings when they exist.

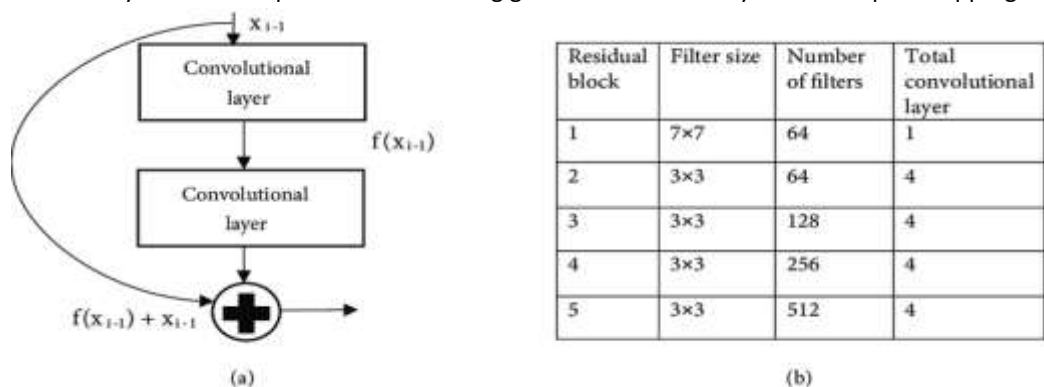


Fig. 1. ResNet-18 architecture: (a) basic building block of residual learning, (b) filter information of different convolutional layer [12].

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A. Neural Network Architecture

The model being built contains a ResNet18 [12]. Which acts as the backbone of this structure. Resnet is a short form of a residual network which is different from a normal convolutional neural network. In general, in a deep convolutional neural network, several layers are placed one after the other to train for classification. At the end of each layer, the network learns some features. In residual learning, the layers fit the residual mapping instead of learning the underlying mapping. Residual can be simply understood as subtraction of features learned from the input of that layer. ResNet does this using shortcut connections, i.e., jumping over some layers. It is effective as compared to a normal deep CNN due to skipping and also solves the problem of vanishing gradient.

Convolutional Neural Network (CNN) [7], uses convolution kernels for extracting higher-level features to converge with the initial images or function maps. We will also be experimenting with MobileNets [13], deep neural networks which are lightweight and have a streamlined structure. They are so streamlined because they use depth-wise separable convolutions. MobileNets contain two simple global hyper-parameters, which let the researcher select the right sized model for their model. Seeing particular constraints of the problem, these hyper-parameters efficiently trade off latency and accuracy. These showcase detailed experiments on resource and accuracy tradeoffs and support strong performance when compared to other popular ImageNet classification-based models. The effectiveness of MobileNets is demonstrated across a wide range of applications such as large-scale geo-localization, object detection, finegrain classification, and face attributes. MobileNets serve as a lighter backbone and it will be easier to implement OpenCV on such models [14]. These will inherit the parameters of the backbone and neck from pretrained Wider Face dataset and ImageNet so as to increase the efficiency of our model and help train our model better due to its limited dataset size.

B. Transfer Learning

Transfer learning is a machine learning method where a model made for a certain task is used as the base model for some other problem. It is a method that stores knowledge gained from one problem and uses it for some other problems [15]. This methodology we have applied is famous in deep learning. Pre-trained models are the place where we start when working with natural language processing and computer vision gives the immense computational and time resources needed to build neural network models on these issues and the enormous skill leaps they provide on related issues.

In this model, the approach for transfer learning that we use is a pre-trained model approach where we take a model we use pre-trained weights and reuse that model by tuning it to our dataset. Example: In our face mask detector, we take pre-trained imagenet weights from mobilenetv2 and then fine tune our model to our dataset.



Fig. 2. Real time detection of face mask (with mask)



Fig. 3. Real time detection of face mask (multiple people)

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4. EXPERIMENTAL RESULT AND DISCUSSION

The current research has led us to the most efficient answers to our problem and the development of these models along with the training gave us the following results. We also connected each of these to OpenCV and have implemented a real-time working model for the same. Read Table 1 for the accuracies and losses of the two models we tested on, where we discussed the training accuracy and loss as well as the accuracy and loss on our validation dataset.

Table 1.

Model	Accuracy		Loss	
	train_accuracy	val_accuracy	train_loss	val_loss
MobileNetv2	0.9915	1.00	0.0707	0.0208
Resnet18	0.9920	0.9990	0.0000	0.0024



Fig. 4. Training and validation loss during fine tuning for MobileNetv2



Fig. 5. Training and validation accuracy during fine tuning for MobileNetv2

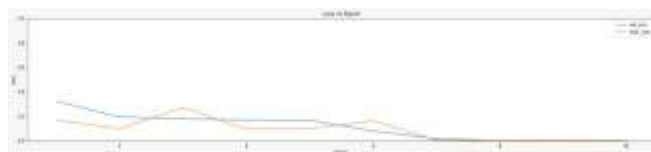


Fig. 6. Training and validation loss during fine tuning for Resnet18

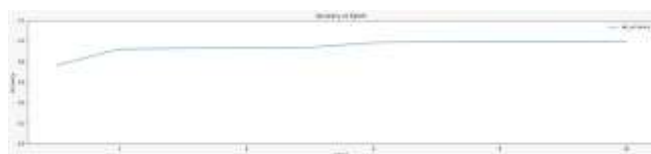


Fig. 7. Training accuracy during fine tuning for Resnet18

5. CONCLUSION AND FUTURE WORKS

Our research work has led us to the conclusion that there are several effective models that can detect the presence of face masks, and this creates the possibility of various different technological solutions to our COVID-19 problem. This research resulted in the realization that using Resnet18 with transfer learning is an effective method to detect face masks due to the lack of related data to train the models and this creates very effective results and using models like mobile net leads to better results in real time when there is low computational power involved and hence performs better when the input is a live video. Further experimentation continues after this paper as well. The following will be improved in future work, and the aim of this paper is to share our findings and present the best methodologies available in a brief paper so as to present the latest research on face mask detection and compile the best methodologies found to conveniently develop a better model in the future. OpenCV implemented on the models presents great opportunities for us to detect the violation of not wearing a face mask in real time, even with low image quality and helps authorities use technology for the greater good of mankind.

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Facial Mask Detection Using Transfer Learning with Resnet18 and MobileNetV2

REFERENCES

- 1) H. Najma, H. Ansaif, and O. A. Hassen, "AN EFFECTIVE IMPLEMENTATION OF FACE RECOGNITION USING DEEP CONVOLUTIONAL NETWORK," J. SOUTHWEST JIAOTONG Univ. Vol.54, no. No.5, pp. 1–9, 2019, doi: 10.35741/issn.0258-2724.54.5.29.
- 2) O. M. Parkhi, A. Vedaldi, and A. Zisserman, "Deep Face Recognition," no. Section 3, pp. 41.1-41.12, 2015, doi: 10.5244/c.29.41.
- 3) S. S. Farfade, "Multi-view Face Detection Using Deep Convolutional Neural Networks."
- 4) M. Jiang and X. Fan, "Retinamask: A Face Mask Detector," arXiv, 2020.
- 5) S. Yadav, "Deep Learning based Safe Social Distancing and Face Mask Detection in Public Areas for COVID-19 Safety Guidelines Adherence July 2020," no. August, 2020, doi: 10.22214/ijraset.2020.30560.
- 6) B. Novak, V. Ilić, and B. Pavković, "YOLOv3 Algorithm with additional convolutional neural network trained for traffic sign recognition," pp. 165–168, 2020.
- 7) M. Loey, G. Manogaran, M. Hamed, N. Taha, N. Eldeen, and M. Khalifa, "A hybrid deep transfer learning model with machine learning methods for face mask detection in the era of the COVID-19 pandemic," Measurement, vol. 167, no. May 2020, p. 108288, 2021, doi: 10.1016/j.measurement.2020.108288.
- 8) V. Jakkula, "Tutorial on Support Vector Machine (SVM)."
- 9) J. Long, E. Shelhamer, and T. Darrell, "Fully Convolutional Networks for Semantic Segmentation."
- 10) T. Meenpal, "Facial Mask Detection using Semantic Segmentation," 2019 4th Int. Conf. Comput. Commun. Secur., no. April 2020, pp. 1–5, 2019, doi: 10.1109/CCCS.2019.8888092.
- 11) A. Rosebrock, "ImageNet: VGGNet, ResNet, Inception, and Xception with Keras," Pyimagesearch, 2017. <https://www.pyimagesearch.com/2017/03/20/imagenet-vggnet-resnet-inception-xception-keras/>.
- 12) K. He, X. Zhang, S. Ren, and J. Sun, "Deep residual learning for image recognition," Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit., vol. 2016-December, pp. 770–778, 2016, doi: 10.1109/CVPR.2016.90.
- 13) A. G. H. And and W. Wang, "Applications," 2012.
- 14) A. Mordvintsev, "OpenCV-Python Tutorials Documentation," 2017.
- 15) J. West, D. Ventura, and S. Warnick, "Spring Research Presentation: A Theoretical Foundation for Inductive Transfer," Brigham Young Univ. Coll. Phys. Math. Sci., 2007.

The Spatial Dimension in Palestinian Children's Literature: A Reading of Employing Place in Examples of Modern Children's Literature



Sāleḥ Tāha 'Abboud

ABSTRACT: The story prepared for children is based on an elaborate construction that consists of a set of narrative elements that employ in its context many important connotations for the recipient child, whether he is a reader or a listener of the text. This article aims to identify the element of place and its use in children's literature in examples of modern Palestinian children's literature, and aims to clarify what role the place plays within the narrative text prepared for children and the extent of its importance in it, based on the assumption that the place has an important and effective role in the structure of the narrative event. And that moving the event from one scene to another requires moving between multiple places that all serve the plot of the story, and the article assumes that the writer's choice of place is a deliberate choice that is very consistent with the meaning and central idea in the text.

The article divides between a brief discussion of the concept of children's literature and highlighting its importance, then it deals with the place in children's stories and its types and functions, then it deals with a brief analysis of a sample of ten texts from contemporary Palestinian children's literature; In order to identify the characteristic of the place and its employment. The research adopts an analytical approach based on the analysis of the selected texts based on the relationship of place in them to the main idea and meaning; In order to explain the role of the place in the plot and its impact on it.

KEYWORDS: Children's literature, modern Palestinian literature, place, place employment.

CHILDREN'S LITERATURE AND ITS IMPORTANCE

Children's literature is literature that brings children together in its contents and contributes to pushing young people to read, read and listen, and creates in them an incentive for interest and pleasure, which enriches their limited vocabulary, phrases and sensory images, and which creates in the rising generations a desire and curiosity to learn about new ideas that are different from them. Resist traditional ways of thinking that connect them through other everyday cognitive and environmental channels.

The term "children's literature" has a fairly common and simple meaning, and refers to materials that are written for children and young adults to read, and that are published by book publishers in public libraries and bookstores (Reynolds, 2014: 11), and because children have difficulty understanding science at an early age Children's literature comes as an effective means of transferring knowledge in an enjoyable narrative style that is consistent with their mental and emotional capacities and emotional energies (Abu Fanna, 2001). Everything that is written for children, whether it is stories, scientific material, plays, scientific knowledge, questions and inquiries, in books, magazines, radio and television programs, etc., are all materials that together constitute children's literature (Abdel-Fattah, 2000). What is meant by children's literature in its general sense is the mental production written in books directed at children in various branches of knowledge. As for children's literature in its specific meaning, it means any good speech, provided that it creates artistic pleasure in the children's hearts, whether it is prose or poetry, and whether it is written orally (orally or verbally). Al-Hiti, 1986: 47), and what is meant by the term children's literature in all of what the scholars agreed upon is that every linguistic experience - which has an artistic form - is enjoyable and pleasant, which the child passes through and interacts with, thus helping his artistic sense, elevating his literary growth, and his integrated development; Thus, it contributes to building his personality, defining his identity, and teaching him the art of living (Al-Hiti, 1986: 64).

Children's literature depends on texts mixed with pictures and graphics, and children's literature texts may be devoid of educational or behavioral purpose and are satisfied with the child's entertainment and entertainment only. which resonates in everything related to children's literature, its contents and concept, as well as in its definition (Yahya, 2000).

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Children's literature is of great importance for children at all stages of their development and ages. The literary text prepared for them serves them many great services, and constitutes for them mental, emotional and psychological nourishment, and its importance becomes clear through its impact on their upbringing, the formation of their personality, the formation of their artistic tastes, and their artistic tastes (Ali, 2006). In fact, scholars, thinkers and philosophers have valued children's literature in raising young people, and have drawn attention to its importance in cultivating children's morals, developing their imagination, accustoming them to benign behavior, and providing them with areas of pleasure, entertainment and entertainment (Samak, 1998: 447). Children's literature is one of the most important tools of childhood upbringing, which is a pillar of the future of the Arab world, and upon which the future of Arab society and the personality of its child is based, which is intended to be strong and influential, and interest in building children's literature contributes to clarifying the future path for them (Diab, 1995).

THE PLACE IN THE CHILDREN'S STORY, ITS TYPES, AND ITS FUNCTIONS

Place is included in many fields that are associated with it and its study, including the sciences: physics, geography, philosophy and literary criticism (Saleh, 1997: 42). The sensible" (Muhammad, 1984: 124), as well as Aristotle's definition, which stated: "The place is the first container, and it is not part of the thing, because it is equal to the contained thing, and there is the special place and the common place" (Badawi, 1984: 491). Ibn Sina defines the place that joins those mentioned above, in which he said: "It is the inner surface of the celestial body of the apparent surface of the enclosed body" (Al-Obaidi, 1987: 33). Abd al-Qaher al-Jurjani is considered one of the most prominent speakers concerned with the place among the ancient Arab critics, as he proposed three definitions of it: the ambiguous place, the specific place, and the confined place (Al-Jurjani, 2004: 191), which means that al-Jurjani has identified types of place since the Middle Ages, and has transcended Contemporary scholars in the field of literary criticism divided these divisions, and invented others, including: the psychological place, the physical place, the absolute place, the artistic place and the like (Saleh, 1997: 12).

The place, as a vital element of the story, greatly affects the character, as it contributes to the formation of its physical features and psychological characteristics. 26), and the function that the place performs in the character's life determines its relationship with it. This relationship may be intimate, or it may be hostile; The place may match the personality that occupies it and feel it, and it becomes a part of it, and it turns into a part of it; The personality may form its place, and other places that match it, contradict it, harmonize with it, and rebel against it; The place may be an objective equivalent to the dream of the personality, or a symbol of injustice and oppression. It may be a sanctuary that carries the meanings of salvation, purity, and innocence; It may be a prison, a hotbed of corruption, death, and ruin; Here, the importance of the place in which the character lives, as it constitutes its social, cultural, economic, and psychological dimension. If the place was humid and the temperature was high, it affected the character to be inactive (Shawabka, 1991: 18).

The place connects the parts of the narrative text to each other, as it contributes to the formulation of the personality, the events, and their formation, which is the location of the events, their theater, and the relationship between the place, the event, and the personality are interconnected. The word place evokes with it the word "event" in the narrative world, and "the intense description of a place, and its exaggeration, indicates his possession of an event, or his control of the scene of events, and leading them to their end" (Hassanin, 2004: 26), and thus connects the place as an organic compound. In the components of the narrative text in general and the narrative text prepared for children, and related to the rest of the story components; It affects it, and contributes to conveying the event, portraying the character and highlighting the dominant language in the text, and all of this calls for attention to the place within the story and its elements.

The reader perceives the details of the place in the narrative text in a conscious and spontaneous manner, and the data of the place collapses into his unconsciousness, affecting his understanding of the overall context of the text. Text to Symbols (Al-Qasim, 2007).

Places differ in their forms, as they can be distinguished by different scales, sizes and dimensions related to the concepts of narrowness and breadth, openness and closure, length and width, movement and stability, high and low, and so on. The attributes of the spatial form with fixed characteristics and values, such as the closed place that is associated with warmth, intimacy, protection and a sense of privacy. The open space is empty, lost and infinite. In such places, people feel alienation, loneliness, weakness and loneliness, and they are considered hostile and stalking places for humans (Al-Qasim, 2007).

The division of the place into types depends on the extent of its relationship with the human being or the extent of the human connection with him. Humans divide their world into general and private stereotyped places, because the type of place imposes on them a kind of behavior, so that their living conditions are compatible with the requirements of their needs and lives. The writer Ghaleb Halasa divided the place into four types: the first is the hostile place, which is the type that reflects certain embodiments in the fictional work, and takes the character of a patriarchal society. Exile, devoid of human nature, etc. The second

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type is the engineering place, in which detailed information and data abound, as if it takes the place of the engineer and deletes all the characteristics of an evaluative nature from the place, that is, when the place turns into a set of surfaces, colors and details that the eye picks up separately. There is a third type, which is the metaphorical, i.e. virtual, place, which is complementary to the events, and clarifies what was immersed in them, and its purpose is suspense. The fourth type is what he called the place as a living experience, and it is the place in which the fiction writer lived, but he moved away from it and began to live it through imagination, and this type is rare in Arab fictional art (Halsa, 1989: 8-9).

Some scholars talked about four functions performed by the place towards the basic structure of the personality in the literary narrative text, which are functions that exist in reality, the first of which is the symbolic function, and its role is to deepen the feeling of the place, and the feeling of belonging to it, and it helps to confirm the basic construction of the personality, because the repeated experiences are somewhere It helps in developing a sense of continuity and belonging, and it is not a requirement that the place be the one that supports the human sense of belonging and identity. The second function that the place performs is the expressive function, as the place allows the person, young or old, to move through it, and expresses the values he believes in and acquired in his individual or collective framework. To talk about his memories encumbered in it, it allows an expressive space through it. The cognitive function is one of the important functions of the place in the context of its narrative and narrative employment, especially in children, as the place is provided with appropriate information for behavior, and is provided with means that help restore our public and private memories, and restore to the recipient something of his cognitive memory both simple and complex (Al-Qasim, 2007).

THE PLACE IN MODERN PALESTINIAN CHILDREN'S STORIES

We present a description of ten stories from modern Palestinian children's literature, and we monitor the nature, significance and form of the spatial environment in each of them; In order to get acquainted with the employment of the place in it, which are the following stories:

1. The Magic Ball, a children's story written by Shadia Safadi Zoabi (2001), and the story tells what happened to Raghad, and she was sitting on the balcony of their house on a moonless night, so the conversation with her mother took her to her mother telling her the story of Prince Badr al-Zaman, then the mother recounts the story and the course of its events Which revolves in the palace, where one of the scientists invented a magic ball that makes those who look at it able to see the whole world and learn from it wonderful sciences, and Prince Badr Al-Zaman moved through it between unspecified strange places and countries, and after a period of time the magic ball occupied him for everything, and he did not He is considered interested in his work and his role in the palace. His preoccupation with it was a reason for the weakness of the kingdom after the illness of his father, the king. Then the kingdom weakened more and enemies attacked it, until a prince named Kahraman seized it and occupied it without the ability of Badr al-Zaman to defend it, and then the queen returned to her prosperity; Because the new prince was not preoccupied with the magic ball as his predecessor did, and thus the mother ended her story for her daughter Raghad, and Raghad expressed her admiration for Prince Kahraman, and expressed her grumbling about Badr al-Zaman's actions. When she was born, her father brought her a computer as a gift, and she understood that the computer could actually do to her what the magic ball had done to the prince in imagination (Zoabi-Safadi, 2001).

The places mentioned in the aforementioned story are: the balcony, the palace, the strange country, then back to the palace, ending with the house, which is a sequential and logical path that meets with the movement of the event in the story and with the purpose of the text. At night, and this suits the transfer of the story from reality to imagination, through the mother's narration of the story of the prince and the magic ball, then the events move to the palace, which is the logical place in which Prince Badr Al-Zaman lives, and the palace indicates wealth and the availability of comfort and decent living, which the prince did not invest Rather, he lost him by being preoccupied with the magic ball, and the event returns to the house again; In order for the event to end on a personal occasion, Raghad's birthday, and her getting the computer as a gift. The place in this story is a logically employed place that supports the central idea in the text, and it meets with the transition between reality and fantasy and the return from fantasy to reality, and this indicates a convincing use of the place in the text.

2. The Friends Tree, a children's story written by writer and journalist Nader Abu Tamer, and tells the story of a boy whose name was not explicitly mentioned, and he is looking for friends for him, so his classmate called Aseel Ibn advised him to lie under a tree next to his house, and then the fruits of friends will fall on him, so he hurried to implement The advice of his colleague, and a fruit fell on his head, then a worm came out of it saying to him: Look, so he went back to Aseel, and she told him to buy seedlings and plant them, and when they grow up, they will bear fruit and give him friends, so he bought a seedling from Umm Saleh, and came back carrying it and planting it, and the seedling grew and sat under it, and its fruits fell and did not She bore him friends, so Aseel

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asked about that, and she told him if you wanted friends, treat people and take care of them as you did with a seedling, and then the boy knew the secret of making friends (Abu Tamer, 2001).

The dominant place in the last story is the classroom, then the story moves to a more appropriate spatial environment, which is the garden of the house under the tree, and they are the two specific places in the story. There is a friend in it, and the garden of the house is not a place to get friends, and the boy tried to fulfill his wish to get friends, then the surprise was to reveal the secret of getting friends, and it is not dependent on the place, but rather dependent on the care, love and sacrifice of others, it is the individual activity that brings friends and brings them closer from human. It became clear in the story that the place in its shadow is linked to the movement of the character and accompanies it according to its declared desire in the story, and therefore it is an important element whose role depends on the storyline and its other elements.

3. Much more expensive than gold, a story by the writer Suhail Kiwan (2013), which tells about the child Hamed, who found a piece of gold on his way to school, so he started trying to dispose of and buy it, but the market traders warned him that it belonged to a poor woman looking for her, so what was From Hamed, however, he ignored it, and in the end the woman came and discovers with bitterness and sadness that Hamed is her son, and that he lacks the lowest levels of education that is more precious than gold (Kiwan, 2013).

The role of the place in the story revolves around the way Hamed encountered the gold piece, then the school where he tried to use and enjoy it there, then the market, then the house, where the story ends with a sad and disappointing closed end. The place within the course of the story is considered appropriate and contains its events, especially since the problem is related to a piece of gold and a boy, so it is natural for the boy to visit his school to spend what he wants from it and then walk to the market, where he can benefit from it, but the house, which is the place of returning to the truth and the truth, is the one who ended The story has a shocking ending. It seems clear that the place has been employed in a manner commensurate with the movement of the personality and its goal, and that it follows it in terms of its desires and ambitions, and this indicates the contribution of the place in creating an environment suitable for the personality and its behavioral interactions.

4. Injustice does not last, a story by the writer Zuhair Daim (2006), which tells the story of four roosters living in a coop with a group of hens and chicks, then a new turkey enters their coop, and he was violent with them and oppressing them, and he decided to expel the black rooster from the coop, so they met The roosters and consulted, and decided to confront him, and when he returned to the rooster, and before he attacked the black rooster, the four of them attacked him and beat him, so he ran away, leaving the serf (Daim, 2006).

It is clear that the place that contains the events of the story is the coop of chickens and roosters, it is the scene of all events, and with it the story began and ended, and it is a suitable place for the event and for the story with all its components, and the event of injustice, which is considered the knot until the departure of the turkey, which represents the solution, proceeds in balance With the value of the place that symbolizes cooperation, love, participation and softness, and contradicts the values of violence, domination, arrogance and aggression, and thus the writer was able to adapt the story and its purpose to the place in a purposeful and convincing manner, and the place in it had a role that proves that it is appropriate, and thus the place meets a lot with the merits of the story and its symbolic dimensions.

5. Jalal's apple, a children's story by the writer Maysoun Asadi (2012), and the story tells what happened with the talented student Jalal, who was not noticed by anyone at school, and was never taken care of properly, so his father raised this, and after discussing the topic at home, the story ends with a decision Jalal left school permanently (Asadi, 2012).

The story revolves in two places, the first place is the school, where the problem appears in the text, the alienation that Jalal lives in and the feelings of lack of interest in him there, and then the second place, which is the house next to the loving family who is interested in him, and they are two places related to Jalal's life, in which he spends most of his time, which is a general condition for most children who are distributed daily between two places: home and school.

The writer succeeded in employing the two places convincingly, making the character reach the right decision in the end under the shadow of the concerned family, and thus the place, in turn, contributes to the event in facilitating the plot and its succession towards an end that paves the way for a desired change that serves the main purpose of the story.

6. The story I am not violent by the writer Furat Ali Abu Taha (2001), which tells about a boy named Amir, who is a student in the fifth grade, polite and excels in academics, and a story that changes him when he arrives one beautiful spring day at his school, and during the third period, In the Arabic language, he misread, and his colleagues burst out laughing, then his colleagues continued to call him a blown word for a period of days, which annoyed him a lot, so he started cursing and hitting them, and he became violent. After he ignored them, Amir returned to being as polite and superior as he was (Abu Taha, 2001).

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The place in control of the event in the story is the school and the class in which Amir's problem was born, and he is the central character in the story, and it is the same place that incubates the solution of ignoring those who annoy him, and choosing the school as a space and space for the event that suits the event very much, and fits the purpose in the story and the significance it bears for the reader, the school is a place For study and proper and benign behavioral education, a place where many people from different social classes gather; To refine them through its educational and achievement tracks within an inclusive and appropriate educational framework that achieves the desired educational goals. The story succeeded in employing the school as a public educational space to present the problem and reach the solution, and this confirms the importance of the place in drawing the map of the event from its beginning to its conclusion, in a manner that suits the purpose and significance of the story prepared for the child.

7. The story of the generous fish, written by the writer and writer Muhammad Ali Taha (2001), and narrates the story of a poor fisherman and his wife, who caught a gold fish, but she asks him to release it and return it to the sea in exchange for the fulfillment of his wishes, and although the old fisherman is content, his greedy wife asked Palaces, money, and a garden full of flowers, then she asked to be the queen of the sea, and to be served by the golden fish, which angered the fish and pushed it to return them to poverty, hunger and hut (Taha, 2001).

The story moves between the sea, the house and the palace, all of which are spatial positions that meet the movement of the central character in the story, i.e. the fisherman, who works in the sea, and because he is a fisherman, and because the beginning of the transformation is subject to a magical and strange fish, the sea had to be present as an assumed place, and then the story begins. More in a more appropriate spatial environment is the old house, which indicates poverty and depicts the very low material situation, which justifies the greed of the wife whose greed transferred the event to the palace, which as a place indicates wealth and a comfortable and luxurious material condition that did not last long because of greed. The sea bears the sign of goodness, generosity and breadth, and the fish was generous with the good-hearted fisherman, and this confirms the relationship of the sea as a place with one of the values inspired in the story.

8. The story of Christmas tree by writer Naim Araydi (2001), and it tells the story of a girl who asks her parents to plant a tree, and she spent a whole night thinking what kind of trees to plant, so she slept and dreamed that she planted a large tree, then saw in the dream that she meets many trees, some of them for shade. And another for the fruit and the other for the decoration, and this increased her confusion. On the night of the Christmas tree, she saw a dream, in which was a tree that was useful for fruit, decoration and shade at the same time, and asked her to plant it, and when she woke up, she decided to ask her teacher about that tree in order to plant it (Araidi, 2001).

The beginning of the events took place in the garden of the house, where trees are planted, but most of the text and its events revolve in a dream in the room of the little girl who dreams of planting the tree that gives shade, fruits and adornment, and thus the present place in the story is the house in a state of sleep and not wakefulness, and this serves the text It indicates the entrenchment of the value of agriculture in the subconscious of the central character in the story.

The tree is one of the causes of life and a sign of belonging to nature, earth and life, and the tree is one of the factors of production, life and giving. It is appropriate for the beginning of the tree's life, and thus we find a link between the tree and the girl through the symbolic link between the garden and the house, and this indicates a close relationship between place and evolution and development.

9. The Magical Gift, a children's story by writer Nabihah Jabareen (2013), and the story talks about the birthday of a girl named Shaden, who is in the first grade of primary school. She invited some of her classmates, her teacher, and her grandmother to attend her birthday party, so her father gave her a red dress, while her mother gave her cake Delicious made of chocolate that she loves, and she received gifts from her colleagues and her teacher, and her grandmother's gift was the most important gift, it was an old book without text and without pictures, with magical Arabic letters, when she put her finger on the letters: b. h. R. The book moved her to the sea, so she saw the ships and the port, and when she put her finger on the letters: F. z. a. and. The book transported her into space; She saw the stars and planets, but she felt great fear; She called her grandfather and sought help from him, and then Basat al-Reeh transferred her to Egypt, the Hijaz, Jordan, Lebanon, and Palestine, and then she returned safely to her homeland, and she is very happy with the wonderful gift (Jabareen, 2013).

The story in its content depends on an imaginary structure that is not realistic, and therefore there are many places through the events of the exotic story, the magic book transferred it in a blink of an eye to the sea and then to space, and after the intervention of the grandmother Shaden rides the carpet of the wind that transports it between countries: Egypt, the Hijaz, Jordan, Lebanon, and Palestine. her house.

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The presence of this spatial diversity indicates the relationship of multiple places to the imaginative and exotic dimensions in the story prepared for children.

10. The story of Hisham and Aunt Hiam, which is a children's story written by the writer Nozha Abu Ghosh, and tells the story of Hisham in the third grade, a polite student who loves his school and his teacher, and despite his happiness at going to school, he felt sad when the teacher announced the approaching of their departure on a trip to Tel Aviv, because He does not have enough money to participate in it, his family is poor, and when he returned home, he felt sad, so he went out to his grandfather's farm near the village, and there he sat under an olive thinking, and suddenly he saw the old aunt Hyam approaching and panting from fatigue, so he sat with her and talked to her about his problem, so she offered him a job with her. He agreed and collected money through him to participate in the trip, then he went to the school with joy to pay him, and there he was surprised by the crying of his friend Amir, who lost his money to participate in the trip, and after inspecting the bags by the teacher, he found money in Hisham's bag, so they thought that he stole his friend's money, and Hisham's sadness intensified when he returned He went home, and he did not find a solution to his problem, so he sought help from the grandmother who took him out of the problem and went to school and showed Hisham's innocence of the theft charge, and then Hisham participated in the trip after everyone's respect for him increased (Abu Ghosh, 2000).

The place that is used in this story is the house, then the school, then the house of Aunt Hiam, ending with entertainment sites during Hisham's participation in the school trip. It seems through this gradual presentation of those places arranged according to the plot of the story that moving from one place to another takes into account the escalation of the knot in the text, Then the passage of the text from the circle of closed places to the circle of the external place, that is, the place where he communicated and helped Aunt Hiam, indicates Hisham's exit from the focus of the crisis to the solution at the hands of the grandmother who helped him twice in a row, and this indicates the importance of the place and the change in it in the context of the narration The logic of the sequence of events in the story.

11. The most beautiful bouquet of roses for my mother, a story written by the writer Amal Harb (2000). It tells the story of Sabreen, who went out to her garden, looking at the flowers, their beauty and their fragrant smells, in the spring, so she began to think in the garden what she would gift her mother on the occasion of the upcoming Mother's Day, she was confused because she did not have money to buy what she wanted for her mother, and suddenly she saw a bird jumping among the flowers, so she was led to the idea of collecting for her mother a flower of every color as a gift for her. Her mother was happy with the gift, thanked her, and considered her gift the most beautiful (Harb, 2000).

The garden is the place of the central event in the story, and it is a successful place that suits the event, the character, and the purpose of the story, and if the writer had not chosen this place, the solution to the problem would not have been achieved as it happened, and the garden is the meeting place of flowers and plants, and it is related to the spring season and Mother's Day, which always coincides with the beginning of spring. It is clear that the writer chose the place to use it to build the plot in a convincing way, which indicates the entry of the place within the founding elements of a good and coherent plot stylistically and artistically in the story.

CONCLUSION

The article briefly monitored the emergence of the place element in children's literature written by a group of Palestinian children's literature writers in the last two decades, during which time there were many transformations in this genre of literary in Arab writers in general and among the Palestinian Arabs of 1948 in particular, and the article tried through its material The theory turned to children's literature, its importance, and its structural and formal elements, and came to a definition of the place, its functions and types, and then presented a brief analysis of samples of children's stories that represent them. In order to monitor the presence of the place in it.

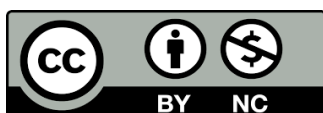
The research concludes, through the preliminary analysis of its selected sample, several notable conclusions, including: The writer's choice of place in his story prepared for children is a deliberate choice that is very consistent with the desired goal, intrigues, and the central idea in the text. He also concluded that the dominant feature of the places mentioned in them is that they are places that are close to the environment for children. (The house, the school, the village, the forest, the garden, the sea...), which reflects the writers' awareness of choosing places that are relatively familiar to the receiving children. After defining the concept of place and its relationship to the elements of storytelling in the light of children's literature by the sample selected in it, the research concludes that the spatial environment is of importance related to the construction and plot of the story, and that there is a close relationship between the texts and the places that constitute the space of the main events in them.

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The research recommends the need to pay attention to the role played by the place in the stories of the Palestinian child, and the need to understand the relationships between it and the components of the narrative text and its other elements related to the place in a bond that serves the purpose of the text, its central idea and its apparent educational message.

REFERENCES

- 1) Abdel-Fattah, a. (2000). *Children's Literature in the Contemporary World*. Cairo: Al Dar Al Arabiya Book Library.
- 2) Abu Fannah, M. (2001). *The realistic story of children in the literature of Salim Khoury*. Haifa: The Arab Academic College of Education.
- 3) Abu Ghosh, N. (2000). *The story of Hisham and Aunt Hiam*. Haifa: Center for Arabic Children's Literature.
- 4) Abu Tamer, n. (2001). *Friends tree*. Kafr Qare': Dar Al-Huda for printing and publishing.
- 5) Ali, S. (2006). *The story and its impact on the upbringing of the child*. Cairo: The world of books.
- 6) Al-Jurjani, A. (2004). *Definition dictionary*. Investigation: Muhammad Siddiq Al-Minshawi. Cairo: House of Fadela.
- 7) Al-Obaidi, h. (1987). *The theory of place in the philosophy of Ibn Sina*. Baghdad: House of General Cultural Affairs.
- 8) Al-Qasim, A. (2007). *The specificity of the place in the Arab short story in Israel*. Kafr Qara: Dar Al-Huda for printing and publishing.
- 9) Araydi, N. (2001). *Tree Festival*. Kafr Qare': Dar Al-Huda for printing and publishing.
- 10) Asadi, M. (2012). *Jalal's apple*. Kafr Qare': Dar Al-Huda for printing and publishing.
- 11) Badawi, A. (1984). *Encyclopedia of Philosophy*. Beirut: The Arab Institute for Studies and Publishing.
- 12) Daim, Z. (2006). *Injustice will not last*. Haifa: Center for Arabic Children's Literature.
- 13) Diab, M. (1995). *Introduction to children's culture and literature*. Damascus: International House for Publishing and Distribution.
- 14) fish, m. (1998). *The art of teaching language education*. Cairo: Arab Thought House.
- 15) Hafez, p. (1982). Structural properties of the story. *Fosoul Magazine: Literary Criticism Magazine*, Volume 2, Number 3. Cairo: The General Egyptian Book Organization.
- 16) Hassanein, M. (2004). *Reclaiming the place: A study in the mechanisms of narration and interpretation in the narration of the ship by Jabra Ibrahim Jabra as an example*. Sharjah: Department of Culture and Information.
- 17) Hetty, H. (1986). *children's literature*. Cairo: The Egyptian General Book Authority.
- 18) Jabarin, N. (2013). *The magical gift*. Kafr Qare': Dar Al-Huda for printing and publishing.
- 19) Kiwan, S. (2013). *Much more expensive than gold*. Tel Aviv: Center for Books and Libraries.
- 20) Muhammad, A. (1984). *General Philosophy Issues and Its Topics*. Alexandria: University Knowledge House.
- 21) Reynolds, K. (2014). *Children's literature: a very short introduction*. Translation: Yasser Hassan. Cairo: Al-Hindawi Institute for Education and Culture.
- 22) Saleh, p. (1997). *Issues of novelist place in contemporary literature*. Cairo: Dar Sharqiyat.
- 23) Shawabkeh, M. *The significance of the place in the cities of salt by Abdul Rahman Munif*. Yarmouk Research Journal Volume 9, Issue 2, (1991), 12-49.
- 24) Taha, M. (2001). *The generous fish*. Kafr Qare': Dar Al-Huda for printing and publishing.
- 25) war, a. (2000). *The most beautiful bouquet of roses for my mother*. Haifa: Center for Arabic Children's Literature.
- 26) Yahya, R. (2000). *The term "children's literature", its concept and problems*. Positions Magazine 22-23. Haifa: Al-Mawakeb Institute.
- 27) Zoabi - Safadi, St. (2001). *The magic ball*. Kafr Qare': Dar Al-Huda for printing and publishing.



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About the Manuscripts of Farrukhi Termizi's Work "Devoni Farrukhi"



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ABSTRACT: The article reflects the researches related to the literary activity of Maulana Abu-l-Hasan Ali Farrukhi Termizi, one of the scholars known by the name of Termizi. Comments are given on the scientific description of the manuscripts of the work "Devoni Farrukhi" published by him.

KEYWORDS: Devon, Central Asia, Termizi, Farrukhi, manuscript

INTRODUCTION

It is known that in recent years, comprehensive research of the lives, scientific activities and written heritage of the scholars who came from Central Asia has become one of the urgent issues. It is worth noting that scientists known as Khorezmi, Bukhari, Samarkandi, Termizi, and Khukandi have a worthy position in world science. Although the scientific heritage of these thinkers has been studied to a certain extent, there is still a lot of research to be done. In particular, the written legacy of Termizian scholars in the field of Islamic sciences has attracted the attention of Qur'anic scholars, hadith scholars, Islamic scholars, and historians-source scholars. For this reason, the works of thinkers of this region have been copied, translated, published and researched. However, research on the literary heritage of thermal scientists cannot be considered sufficient. Because it is written in the region by writers such as Maulana Abu-l-Hasan Ali Farrukhi Termizi (d. 429/1037), Qatron ibn Mansur Termizi (d. 12th century), Sabir ibn Ismail Termizi (d. 542/1147) recorded. Also from I.S. Braginsky's "From the history of Tajik folk poetry", "From the history of Persian and Tajik literatures", "Research on Tajik culture", in the books "Iranian Literary Heritage", you can find a number of information about the writers of Termiz [1]. In addition, E.E. Bertels touched on this in his book "History of Persian-Tajik literature".

THE MAIN FINDINGS AND RESULTS

Among Termiz writers, Maulana Abu-l-Hasan Ali Farrukhi Termizi is one of the mature thinkers of his time. Some sources say that Farrukhi Termizi is from Seistan, while Davlatshah Samarkandi says that he is from Termizi. However, it is known that the poet's father is one of the officials of the governor of Seistan. Maybe that's why a number of poets of Seistan were mentioned. In any case, the addition of Termizi nisba to his name indicates that the poet was born or created in Termiz. It is known from the sources that Farrukhi, his nickname, lived during the reign of Sultan Mahmud Ghaznavi (388/998–421/1030). Some information about his life and scientific activity is given in the works of Abdurrahman Jami (d. 897/1492) "Bahoristan" and Davlatshah Samarkandi (d. 900/1495) "Tazkirat ush-shuaro" (another name – "Tazkirai Davlatshahi"). Also, Abdurrahman Jami wrote the following in his work "Bahoristan": "[Farrukhi] lived during the time of Yaminuddavla, and gained a lot of wealth from the virtues of his beliefs. He chose to travel to Samarkand. When approaching the city, the bandits only demanded. He did not introduce himself to anyone when he entered Samarkand. In addition, in the studies of scientists such as E.Bertels, E.Brown, Ya.Ripka, there are scientific comments about Farruhi's literary activity. As a result of many years of research, the poet's works "Tarjiman al-Balogha" and "Devoni Farrukhi" have been identified. Unfortunately, we do not have any information about his work "Tarjiman al-balogha". However, several manuscripts of his second work "Devoni Farruhi" are kept in a number of European manuscript funds and the main fund of the Institute of Oriental Studies of the Academy of Sciences of Uzbekistan. Some studies say that the work was published in Tehran in 1301/1923. However, we did not have the opportunity to get acquainted with this publication. We would like to dwell here on the manuscript copies of this divan.

About the Manuscripts of Farrukhi Termizi's Work "Devoni Farrukhi"

The manuscripts of "Devoni Farrukhi" are available in the British Museum, St. Petersburg Library and the main fund of the Institute of Oriental Studies named after Abu Rayhan Beruni of the Academy of Sciences of Uzbekistan.

1. Two manuscripts of "Devoni Farrukhi" are stored in the British Museum. One of them is scientifically described under number #203.

The beginning: بر آمد نیلکون ابری زروی نیلکون دریا
چورای عاشقان کردان چوطیع بیدالان شیدا

The end: آن روز چه بازی بسر کار شدم
تالاجرم امروز گرفتار شدم

The manuscript was copied in the Nastaq letter dated Jumad 1275/January 1859..

The second copy is scientifically described under number #204.

The beginning: بر آمد کیلکون ابری زروی نیلکون دریا

It was copied in the month of Ramadan 1248/February 1833 in the letter of Nastaq.

2. There is information in the scientific literature that two manuscripts of "Devoni Farrukhi" are kept in the library of St. Petersburg. However, it was not possible to get acquainted with their scientific description.

3. Two manuscripts of "Devoni Farrukhi" are kept in the main fund of the Institute of Oriental Studies of the Academy of Sciences of the Republic of Uzbekistan. One of them is a copy copied by Mir Safiullah Bukhari in 1269/1852 and is kept under number #160/II.

The beginning: بر آمد نیلکون ابری زروی نیلکون دریا
چورای عاشقان کردان چوطیع بیدالان شیدا

The end: آن روز چه بازی بسر کار شدم
تالاجرم امروز گرفتار شدم

This manuscript contains the poet's ghazals, verses and rubai. As for the codicological features, it was copied in 20 sheets of Kokan paper in two columns of 14-16 lines in the letter of nastaliq. The cover is made of red leather with printed patterns. Mullah Abdulhakim ibn Mullah Qalandar Joybari is the author of the cover. At the beginning of this manuscript, biographical information related to the work of Abu-I-Hasan Ali Farrukhi Termizi from the work "Tazkirai Davlatshahi" is given. In it, Teacher Farrukhi is mentioned as a student of Unsuri, a man of sound mind, good manners, an unparalleled poet in maturity and eloquence. In addition to his divan, the poet wrote a work called "Tarjiman al-Balogha", which is used as an example by all virtuous people. In addition, the following words of Rashiduddin Votvot are quoted: "... Mutanabbi (Abu al-Tayyib, d. 354/965) is famous among the Arabs, and Farrukhi is one of the novice poets...".

The second manuscript is kept under number #238/VIII.

The beginning: بر آمد نیلکون ابری زروی نیلکون دریا
چورای عاشقان کردان چوطیع بیدالان شیدا

The end: من عاشقم ودلم بروگشته تباه
عاشق نبود زعیب معشوق آگاه

Other works copied with "Devoni Farrukhi" in this manuscript, whose scribe is not indicated, belong to the 19th century. Therefore, this work can be said to be copied at the same time as the above. Only its size is 11 pages less than digital copy No. 160/II, arranged in two columns in the nastasliq letter. The cover is made of green cardboard. In this manuscript, too, the biographical information related to the activities of Abu-I- Hasan Ali Farrukhi Termizi is somewhat more detailed than in the previous copy. Especially, the fact that the author adds qaddasa allahu sirrahu to his nisba is a sign that he is one of the leaders of Sufism.

CONCLUSION

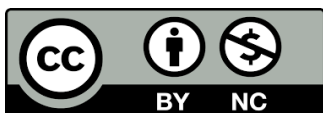
In general, the information related to the life and scientific activity of Abu-I-Hasan Ali Farrukh Termizi indicates that not only famous scientists of the Islamic world, but also thinkers in other fields of science came out in Termizi.

REFERENCES

- 1) Braginsky I.S. From the history of Tajik folk poetry. Moscow: Publishing House of the Academy of Sciences of the USSR, 1956. - P. 275, 306, 334; From the history of Persian and Tajik literature. Moscow: Nauka, 1972. - P. 15.16, 168, 249, 488, 502; Studies on Tajik culture. Moscow: Nauka, 1977. - P. 228; Iranian literary heritage. Moscow: Nauka, 1984. - P. 124.

About the Manuscripts of Farrukhi Termiziy's Work "Devoni Farrukhi"

- 2) Lutfillaev, K. M. (2019). TAFSIRS OF THE QURAN, WRITTEN BY SCIENTISTS OF CENTRAL ASIA. Theoretical & Applied Science, (5), 310-313.
- 3) Lutfillaev, H. M. (2020). Copies and translations of the commentary "mawaheb-e aliyya". Asian Journal of Multidimensional Research (AJMR), 9(12), 109-114.
- 4) Lutfillaev, Kh. M. (2020). LISTS OF POETIC WORKS OF SHEIKH SULEIMAN TURBATI (XV CENTURY) KEPT IN THE FOUNDATION OF THE INSTITUTE OF ORIENTAL STUDIES. In TOPICAL ISSUES OF MODERN SCIENCE AND EDUCATION (pp. 86-87).



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The Policy of Final Income Tax Incentives For Micro, Small Medium Enterprises (MSMEs) During the Covid-19 Pandemic



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ABSTRACT: The Covid-19 pandemic has had a significant impact on Indonesia. The impact of Covid-19 is not only in the health sector, but also in various aspects including economic, social, educational, and so on. Various government policies were carried out to overcome and prevent the wide spread of the Covid-19 virus, such as social distancing, and working from home. It was to reduce the occurrence of crowds by establishing Large-Scale Social Restrictions and Enforcement of Restrictions on Community Activities. However, the government's policy also harmed the economic sector, especially MSMEs. They suffered a lot of losses and some were even unable to continue their business. From such conditions, it would be very difficult for MSMEs to pay tax obligations. therefore, the government made policies in the field of taxation, by providing incentives for MSMEs. The problem was what the benefits of providing this final income tax incentive for MSMEs would be. The research method used was an empirical legal study. The results showed that most of the respondents interviewed by the author had not taken advantage of these incentives due to ignorance of the existence of these incentives, lack of understanding of the procedures, and so on.

KEYWORDS: Policy, Incentive, Final Income Tax, MSMEs, Covid-19 pandemic.

I. INTRODUCTION

In early 2020, the world was shocked by the new outbreak from Wuhan, Hubei Province (China). Furthermore, it spreaded quickly to 190 countries and territories (Yuliana, 2020). Corona Virus Disease 2019 atau yang biasa disingkat Covid-19 adalah penyakit menular yang disebabkan oleh SARS-CoV-2 sebagai salah satu jenis virus korona. Manusia yang terjangkit virus tersebut akan menunjukkan tanda-tanda penyakit infeksi saluran pernapasan mulai dari flu sampai yang lebih serius, seperti Middle East Respiratory Syndrome (MERS) dan Severe Acute Respiratory Syndrome (SARS) atau sindrom pernapasan akut (Nasution & Hidayah, 2021). Based on these situations and conditions, WHO on March 11, 2020 declared Covid-19 as pandemic. Indonesia then followed WHO's steps by issuing Presidential Decree No.11 of 2020 concerning the Determination of Public Health Emergencies for Corona Virus Disease 2019 (Covid-19) and Presidential Decree Number 12 of 2020 concerning the Designation of Non-Natural Disaster for the Spread of Corona Virus Disease (Covid-19) as a National Disaster (Sipayung et al., 2020).

This pandemic condition has caused the government to issue policies to prevent or reduce the spread of the Covid-19 virus. Some of these government policies were Large-Scale Social Restrictions (PSBB), Enforcement of Limitations on Community Activities (PPKM), application of health protocols (Prokes), work from home, and so on. Various government policies related to Covid-19 to reduce the spread of the Covid-19 virus, on the other hand, have had a negative impact in various fields including education, tourism, industry, public services, and the economic sector. Many industrial and tourism sectors suffered losses. Many MSMEs also went bankrupt. Public services were hampered. Many layoffs increased the number of unemployed. (Gustav Rizal, 2021). Restrictions on community activities affected business activities which then have an impact on the economy.

The report from the Central Statistics Agency (BPS) in August 2021 stated that Indonesia's economic growth in the second quarter of 2020 was minus 5.32%. Previously, in the first quarter of 2020, BPS reported that Indonesia's economic growth only grew by 2.97%, down far from the growth of 5.02%. Economic development also slowed down. It had a direct impact on the decline in tax revenues. Until the end of September 2020, national tax revenue was recorded at only 751 trillion rupiahs (Mas Eko Affandi, 2021). The role of government is needed to overcome the various impacts as a result of the Covid-19 outbreak. The government has a role to play in reducing the impact of the pandemic to a minimum.

In dealing with the Covid-19 pandemic, the government implemented a fiscal policy on state revenue and expenditure to maintain economic growth and economic stability (Gustav Rizal, 2021). In taxation, the Government through the Directorate

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General of Taxes can use several tax functions. Taxes are not only a source of revenue in the State Revenue and Expenditure Budget (APBN). Taxes also play an important role in efforts to maintain and recover the economy, taxes must be able to play a major role in providing overall stimulus for National Economic Recovery, especially during a pandemic. With the economic stimulus policy through taxation, it is expected that the business sector, including MSMEs, will be able to develop again, the investment climate will improve again, and people's welfare will increase.

The use of the tax function by the government is not only a budgetair function (the use of tax funds to finance state expenditures, for example during the current pandemic for vaccine financing, Covid-19 patient care, and procurement of medical devices) but also no less important is the regulatory function (the function of the regulation) namely: the tax function to achieve certain goals outside the budgetair function (financial function). This regulatory function of taxation cannot be separated from the use of legal instruments (tax law) to regulate matters related to government policies in the field of taxation during the Covid-19 pandemic. Regulatory functions include: taxes are used as a tool to achieve the goal of overcoming the economic impact caused by Covid-19, including through the provision of tax incentives, tax relaxation, lowering of corporate income tax rates, and so on.

The provision of tax incentives is also given to Micro, Small, and Medium Enterprises (MSMEs). Based on Law Number 20 of 2008 concerning Micro, Small, and Medium Enterprises; MSMEs are businesses run by individuals, households, or small business entities. The provision of tax incentives for MSMEs is the government's response to the impact of the Covid-19 Pandemic which has also been felt by MSMEs. Officially, the Ministry of Finance of the Republic of Indonesia has borne the MSMEs tax which has been set at 0.5%. This is regulated in Minister of Finance Regulation (PMK) Number 44/PMK.03/2020 concerning Tax Incentives for Taxpayers Affected by the 2019 Corona Virus Disease Pandemic. The purpose of implementing the MSMEs tax exemption is to help MSMEs to continue running their business amid the Covid-19 Pandemic.

The existence of tax incentives borne by the government for MSMEs is expected to ease MSMEs. Thus, they can continue to run their business during the Covid-19 pandemic. The research problems are how to use this Final Income Tax incentive by MSMEs and whether MSMEs have understood and used the incentive.

II. RESEARCH METHOD

This type of research was empirical legal research (a combination of doctrinal legal research and non-doctrinal legal research). Doctrinal law research uses a conceptual approach and a (statute) regulatory approach. Doctrinal law research is carried out by searching and analyzing legal materials, both primary legal materials, secondary legal materials, and tertiary legal materials (Wibawa & Susanto, 2020). This Non-doctrinal legal research used a qualitative approach.

The empirical legal approach uses the main data source, namely: primary data (data obtained from field research through interviews). In this study, interviews were conducted with 10 MSMEs respondents, in particular 5 batik traders in Surakarta City and 5 batik traders in Pekalongan City. Data analysis was carried out qualitatively. Qualitative research is used to investigate, describe, explain, and discover the quality or features of social influence that cannot be explained, measured, or illustrated through a quantitative approach (Wibawa & Susanto, 2020).

III. RESULTS AND DISCUSSION

A. The policy of Tax Incentive During the Covid-19 Pandemic

The role of taxes in a country is very important because, without taxes, the state will have difficulty carrying out its activities. This is because taxes are a very important source of state revenue. Based on the provisions of the Taxation Law currently in force, the definition of tax is described as that tax is a mandatory contribution paid to the state owed by an individual or entity, coercive in nature, based on the law, which does not receive direct compensation and is used for the country for the greatest prosperity of the people (*Article 1 paragraph (1) of Law Number 28 of 2007 concerning the Third Amendment to Law Number 6 of 1983 concerning General Provisions and Tax Procedures, 2007*).

In Indonesia, tax revenue is highly relied upon to finance state expenditures, both routine, and development. Currently, almost 80% of state revenue is supported by the taxation sector (Pratiwi, 2017). Due to the current pandemic which has affected various sectors, the tax function is very important in overcoming the impact of the Covid-19 pandemic. The function of the tax budgetair is, for example, during this pandemic, tax funding is used to procure vaccines, procure medical devices, and finance the treatment of Covid-19 patients. Regulatory functions include: taxes are used as a tool to achieve the goal of overcoming the economic impact caused by Covid-19, through the provision of tax incentives, tax relaxation, lowering of Corporate Final Income Tax rates, and so on. The function of tax redistribution during a pandemic, the results of tax collection from the public including taxpayers will also be used not only for taxpayers but also for low-income people in various forms, for example, People's Business Credit, Cash Direct Assistance, or other social assistance.

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The government's policies for providing tax incentives and concessions during the pandemic period include Article 21 Income Tax incentives, MSMEs tax incentives, construction services Income Tax incentives, Article 22 Import Income Tax incentives, Article 25 Income Tax incentives, Value Added Tax incentives. In addition to providing incentives, the government also provides several tax relaxations, such as the reduction of corporate income tax rates, the extension of time in tax administration, provision of customs facilities, taxes on electronic transactions (Regulation of the Minister of Finance of the Republic of Indonesia Number 114/PMK.03/2022 concerning Amendments to the Regulation of the Minister of Finance Number 3/PMK.03/2022 concerning Tax Incentives, 2022).

In more detail, the provision of tax incentives is as follows (Enggarnadi, 2021):

1. Article 21 Income Tax Incentives. this incentive is given to employees who have an NPWP (Taxpayer Identification Number/TIN) and a fixed and regular annualized gross income of no more than IDR 200 million. In this case, it is intended for employees who work for companies engaged in one of the 1,189 specific business fields, companies that obtain Ease of Import Facilities for Export Purposes, or companies in bonded zones. They can get Article 21 income tax incentives borne by the government;
2. MSMEs Tax Incentives. MSMEs entrepreneurs receive a Final Income Tax incentive of 0.5% according to Government Regulation Number 23 of 2018 which is borne by the government. Thus, MSMEs taxpayers do not need to pay taxes, but must fulfill the specified requirements;
3. Final Income Tax Incentives for Construction Services, taxpayers who receive income from the construction service business in the Irrigation Water Use Acceleration Improvement Program obtain an Income Tax incentive for construction services to be borne by the government;
4. Article 22 Import concerning Income Tax Incentives. exemption incentives from collecting Income Tax Article 22 on imports are given to taxpayers engaged in one of 730 certain business fields (previously Number SP-05/2021721 business fields), companies with Import Facility for Export Purposes, or companies in bonded zones;
5. Article 25 Income Tax Installment Incentives. receiving a reduction in Article 25 Income Tax installments of 50% of the installments should be payable to taxpayers engaged in one of 1,018 certain business fields (previously 1,013 business fields), companies with Import Facilities for Export Purposes, or companies in bonded zones;
6. Value Mining Tax Incentive. Obtaining an accelerated refund incentive up to a maximum amount of overpayment of IDR 5 billion for low-risk taxable Entrepreneurs engaged in one of 725 certain business fields (previously 716 business sectors), companies with Import Facilities for Export Purposes, or companies in bonded zones.

B. Final Income Tax Incentive for MSMEs borne by the Indonesian Government

Micro, small, and medium business activities (MSMEs) are business sectors that can develop and be consistent in the national economy. Micro, small and medium enterprises (MSMEs) are a good platform for job creation planned by the government, the private sector, and individual business actors (Halim, 2020). Based on data published by the Indonesian Ministry of Cooperatives and Small and Medium Enterprises, it is known that the contribution of MSMEs reaches more than 60% of the national gross domestic product (Isnaeni; et al., 2021).

MSMEs are regulated based on the Law of the Republic of Indonesia Number 20 of 2008 concerning Micro, Small, and Medium Enterprises. The MSMEs criteria are based on Articles 35 and 36 of Government Regulation Number 7 of 2021 concerning Facility, Protection, and Empowerment of Cooperatives and Micro, Small, and Medium Enterprises. It is stated that the MSMEs capital criteria consist of:

- a. Micro-enterprises have a business capital of up to a maximum of IDR 1,000,000,000.00 (one billion rupiahs) excluding land and buildings for business premises;
- b. Small businesses have a business capital of more than IDR 1,000,000,000.00 (one billion rupiahs) up to a maximum of Rp. 5,000,000,000.00 (five billion rupiahs) excluding land and buildings for business premises;
- c. Medium-sized businesses have a business capital of more than IDR 5,000,000,000.00 (five billion rupiahs) up to a maximum of IDR 10,000,000,000.00 (ten billion rupiahs) excluding land and buildings for business premises.

Based on the Government Regulation of the Republic of Indonesia Number 46 of 2013 concerning Income Tax on Income from Businesses Received or Gained by Taxpayers Having a Certain Gross Turnover, it is stated that Final Income Tax for MSMEs is a tax on income (turnover) from businesses received or earned by the taxpayer. Final Income Tax is specifically imposed on taxpayers who have a gross turnover or turnover below IDR 4.8 Billion in a year. However, on July 1, 2018, the Government of Indonesia issued Government Regulation Number 23 of 2018 concerning Income Tax on Income from Business Received or Gained by Taxpayers with Certain Gross Turnovers. It is stated that the Final Income Tax rate which was initially imposed at 1% was reduced to only 0.5% with the following conditions:

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1. Individual Taxpayers can benefit from a Final Income Tax rate of 0.5% within 7 years;
2. Corporate Taxpayers such as Cooperatives, Limited Partnerships (CV), and Firms can only enjoy a Final Income Tax rate of 0.5% for 4 years;
3. Meanwhile, Limited Liability Company (PT) taxpayers can only enjoy a 0.5% Final Income Tax rate for 3 years.

Related to Covid-19, the Government of Indonesia has made an Income Tax incentive policy for MSMEs. The government bears the MSMEs tax which has been set at 0.5%. This is the government's response to the impact of Corona Virus Disease 2019 (Covid-19) which is also felt by MSMEs. This is as regulated in the Minister of Finance Regulation Number 44/PMK.03/2020 concerning Tax Incentives for Taxpayers Affected by the 2019 Corona Virus Disease Pandemic. MSMEs actors receive a final income tax facility of 0.5% (Government Regulation Number 23 of 2018) borne by the government (Minister of Finance Regulation Number 44/PMK.03/2020 concerning Tax Incentives for Taxpayers Affected by the Corona Virus Disease Pandemic 2019, 2020). Therefore, MSMEs taxpayers do not need to pay taxes, and tax withholders or collectors do not withhold or collect taxes when making payments to MSMEs. Therefore, MSMEs entrepreneurs must first obtain a Certificate of Government Regulation Number 23 of 2018 and are required to make a report on the realization of the Final Income Tax Borne by the Government every tax period.

C. The Utilization of the Final Income Tax Policy for Government borne MSMEs

As described in the previous sub-chapter, MSMEs entrepreneurs receive a 0.5% Final Income Tax incentive according to Government Regulation Number 23 of 2018 which is borne by the government. Therefore, MSMEs taxpayers no longer need to make tax payments. This tax incentive can be obtained by MSMEs taxpayers by fulfilling the specified requirements.

The Minister of Finance Regulation Number 44 of 2020 stipulates that MSMEs taxpayers must obtain a Certificate of Government Regulation Number 23 of 2018 which can be obtained by applying to the Directorate General of Taxes through the channel on the official website of the tax authority. In addition, in the Regulation of the Minister of Finance Number 44 of 2020, the following matters are regulated in more detail:

- a. Incentive recipients are MSMEs whose gross turnover is < IDR 4.8 billion and is subject to a Final Income Tax of 0.5% based on Government Regulation Number 23 of 2018;
- b. The period for the Final Income Tax to be borne by the Government is 6 months;
- c. MSMEs who receive incentives must submit a report on the realization of the Government Borne Final Income Tax for each tax period no later than the 20th of the following month after the tax period ends.

The procedures that MSMEs have to do to obtain the Final Income Tax Borne by the Government are as follows:

- a. Arrange the Statement Letter of Government Regulation Number 23 of 2018 to the respective Tax Service Offices;
- b. Apply to the www.pajak.go.id page;
- c. Make a report on the realization of the Government Borne Final Income Tax every Tax Period;
- d. The government-borne final income tax realization report attached with a tax deposit slip or billing code printout must be submitted no later than the 20th, the following month after the tax period ends.

The MSMEs business is one of the sectors that has felt the most impact from the Covid-19 outbreak. Based on information from the Ministry of Cooperatives, Micro, Small and Medium Enterprises, there are at least 949 reports from cooperatives and micro, small and medium enterprises (MSMEs) entrepreneurs who have been affected by the Covid-19 outbreak (Gustav Rizal, 2021). During the pandemic, 37,000 MSMEs were recorded reporting very serious impacts in the form of a 56% business decline, 22% financing difficulties and the rest were problems with the distribution and availability of raw materials (Aknolt Kristian Pakpahan, 2020; Arifani & Anta Kusuma, 2021). In general, the impact of Covid-19 on MSMEs is as follows (Tim PT Mid Solusi Nusantara, 2020):

1. Decline in sales

Since the Corona outbreak, this has had an impact on the purchasing power of the people themselves. This is what makes MSMEs' sales decline. A total of 774 cooperatives and MSMEs or the equivalent of 68% admitted that their sales have decreased drastically since the Corona Virus outbreak. This decline was also felt in various cities in Indonesia, such as Jakarta, West Java, Banten, Central Java, East Java, Yogyakarta, West Sumatra, North Sumatra, Bengkulu, Riau, West Kalimantan, East Kalimantan, South Kalimantan, Bali, Central Sulawesi, South Sulawesi, to North Sulawesi.

2. Difficult to Obtain Raw Materials

Besides a decline in sales, the MSMEs entrepreneurs also admitted that they had difficulty obtaining raw materials due to restricted import activities. It was recorded that around 63 cooperatives and MSMEs (6%) complained about difficulties with raw materials. This occurred in Jakarta, Banten, Yogyakarta, West Kalimantan, East Kalimantan, Central Java, West Java, and East Java.

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3. Distribution Delays

A total of 111 cooperatives and MSMEs (equivalent to 10%) revealed that their distribution was hampered, especially when there was already the implementation of Large-Scale Social Restrictions in their respective areas. Of course, this makes the delivery or receipt of goods to consumers late.

4. Having Capital Difficulties

It was recorded that 141 cooperatives and MSMEs (12%) complained that they were experiencing capital problems. This occurred in Jakarta, Banten, Central Java, East Java, South Kalimantan, and several other cities in Indonesia.

5. Production Barriers

42 cooperatives and MSMEs (4%) revealed that their production was hampered by the current outbreak of the Corona Virus (Covid-19), one of which was the difficulty in obtaining raw materials. This occurred in Jakarta, Banten, West Java, Central Java, and several other cities in Indonesia.

Based on the results of the Researcher's interview with 10 MSMEs respondents, regarding the impact of Covid-19 on their sales, 100% of them stated that they were very affected by the presence of Covid-19. Respondents stated that they experienced losses due to Covid-19. They stated a decrease in sales turnover of more than 50%. This is due to the consequences of Covid-19 which caused the government to issue a policy of Large-Scale Social Restrictions, Imposition of Restrictions on Community Activities, and so on resulting in a drastic reduction in visits by the public to their businesses (their shops), resulting in a decrease in sales turnover.

The steps taken to be able to continue to run their business, 7 MSMEs conducted online selling. Meanwhile, 3 MSMEs were forced to lay off their employees and make sales themselves. Regarding the existence of tax incentives borne by the government, the majority (8 MSMEs) stated that they did not take advantage of these incentives, while 2 MSMEs stated that they used these incentives. As for the reasons given by 8 MSMEs that did not take advantage of the tax incentives borne by the government, 6 MSMEs stated that they did not know the program existed, 2 MSMEs stated that they knew about the program, but thought that the procedure was difficult to implement. Meanwhile, 2 MSMEs that took advantage of tax incentives were borne by the government, because these tax incentives can help their businesses to keep running because they don't have to be burdened with paying taxes anymore.

IV. CONCLUSION

According to the result, it can be concluded that to help the sustainability of MSMEs during the Covid-19 pandemic, the government provides tax incentives for MSMEs. The incentive is in the form of Final Income Tax for MSMEs borne by the government based on Minister of Finance Regulation Number 44/PMK.03/2020 concerning Tax Incentives for Taxpayers Affected by the 2019 Corona Virus Disease Pandemic. However, to obtain tax incentives, MSMEs must comply with the procedures stipulated in the Ministerial Regulation Finance Number 44/PMK.03/2020. Regarding the use of tax incentives borne by the government by MSMEs, most (80%) of the respondents stated that they did not take advantage of these incentives. The reasons given by MSMEs did not take advantage of these incentives, due to their lack of knowledge and the difficulty of procedures for obtaining these incentives.

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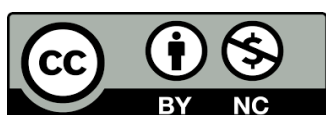
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REFERENCES

- 1) Aknolt Kristian Pakpahan. (2020). Covid-19 dan Implikasi Bagi Usaha Mikro, Kecil, dan Menengah. *Jurnal Ilmiah Hubungan Internasional*, 20(April), 1–6. <https://core.ac.uk/download/305104996.pdf>
- 2) Arifani, M. R., & Anta Kusuma, I. G. K. C. B. (2021). Implementasi Insentif Pajak Di KPP Pratama Pontianak Timur. *Jurnal Pajak Indonesia (Indonesian Tax Review)*, 5(2), 164–173. <https://doi.org/10.31092/jpi.v5i2.1413>
- 3) Enggarnadi, B. (2021). *Pandemi Marak, Ekonomi Sesak, Relaksasi Pajak Membuat Rakyat Kompak*. Pajak.Go.Id. <https://pajak.go.id/id/artikel/pandemi-marak-ekonomi-sesak-relaksasi-pajak-membuat-rakyat-kompak>
- 4) Gustav Rizal. (2021). *Pandemi Covid-19, Apa Saja Dampak pada Sektor Ketenagakerjaan Indonesia?* Kompas.Com. <https://www.kompas.com/tren/read/2020/08/11/102500165/pandemi-covid-19-apa-saja-dampak-pada-sektor-ketenagakerjaan-indonesia-?page=all>
- 5) Halim, A. (2020). Pengaruh Pertumbuhan Usaha Mikro, Kecil Dan Menengah Terhadap Pertumbuhan Ekonomi Kabupaten

The Policy of Final Income Tax Incentives For Micro, Small Medium Enterprises (MSMEs) During the Covid-19 Pandemic

- Mamuju. *Jurnal Ilmiah Ekonomi Pembangunan*, 1(2), 157–172. <https://stiemmamuju.e-journal.id/GJIEP/article/view/39>
- 6) Peraturan Menteri Keuangan Nomor 44/PMK.03/2020 Tentang Insentif Pajak Untuk Wajib Pajak Terdampak Pandemi Corona Virus Disease 2019, (2020).
 - 7) Isnaeni, A., Ermawati, L., & Fitri, A. (2021). Pengaruh Penurunan Tarif Pajak Penghasilan Umkm Terhadap Kepatuhan Wajib Pajak Umkm Ditinjau Dalam Perspektif Islam. *Jurnal Akuntansi Dan Pajak PENGARUH*, 22(02), 1–7. <http://jurnal.stie-aas.ac.id/index.php/jap> Jurnal
 - 8) Mas Eko Affandi. (2021). Urgensi Penyeragaman Pola Komunikasi Account Representative Dan Perannya Dalam Peningkatan Efektivitas Pengawasan Kepatuhan Pajak. *Scientax*, 3(1), 29–50. <https://doi.org/10.52869/st.v3i1.156>
 - 9) Nasution, N. H., & Hidayah, A. (2021). Gambaran Pengetahuan Masyarakat Tentang Pencegahan Covid-19 Di Kecamatan Padangsidimpuan Batunadua, Kota Padangsidimpuan. *Indonesian Health Scientific Journal*, 6(1), 107. <https://doi.org/10.51933/health.v6i1.419>
 - 10) Undang-Undang Nomor 28 Tahun 2007 Tentang Perubahan Ketiga Atas Undang-Undang Nomor 6 Tahun 1983 Tentang Ketentuan Umum dan Tata Cara Perpajakan, (2007).
 - 11) Peraturan Menteri Keuangan Republik Indonesia Nomor 114/PMK.03/2022 Tentang Perubahan Atas Peraturan Menteri Keuangan Nomor 3/PMK.03/2022 Tentang Insentif Pajak, (2022).
 - 12) Pratiwi, I. (2017). *80 Persen APBN Bersumber dari Pajak*. Republika.Co.Id. <https://www.republika.co.id/berita/op1s77383/80-persen-apbn-bersumber-dari-pajak>
 - 13) Sipayung, Y. R., Cahya, K., & Wibawa, S. (2020). The Role of Information Technology toward the Development of Online Learning Process in Covid-19 Pandemic Period in Indonesia. *PalArch's Journal of Archaeology of Egypt / Egyptology*, 17(4), 948–958. <https://archives.palarch.nl/index.php/jae/article/view/496>
 - 14) Tim PT Mid Solusi Nusantara. (2020). *Pandemi Corona, Ini 5 Keluhan Para Pelaku Bisnis UMKM*. <https://www.jurnal.id/id/blog/keluhan-para-pelaku-bisnis-umkm-saat-corona/>
 - 15) Wibawa, K. C. S., & Susanto, S. N. (2020). Establishing a special autonomy model in Bali as a means of preserving hindu balinese culture and space. *International Journal of Scientific and Technology Research*, 9(4), 1609–1614. <http://www.ijstr.org/final-print/apr2020/Establishing-A-Special-Autonomy-Model-In-Bali-As-A-Means-Of-Preserving-Hindu-Balinese-Culture-And-Space.pdf>
 - 16) Yuliana, Y. (2020). Corona virus diseases (Covid-19): Sebuah tinjauan literatur. *Wellness And Healthy Magazine*, 2(1), 187–192. <https://doi.org/10.30604/well.95212020>



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Perceptions of Quality, Price and Brand Image Affect the Loyalty of Yogyakarta Adolescent Consumers in Using Iphone Products



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ABSTRACT: The purpose of this study was to examine product quality on price, brand image, and its impact on consumer loyalty to Iphone products in a case study of adolescents aged 17-22 years in Yogyakarta. The population used is all teenagers aged 17-22 who use Iphone in Yogyakarta, and the sample is a portion of teenagers who use Iphone in Yogyakarta as many as 166 respondents. The sampling technique uses Non-Probability Sampling, namely convenience sampling. The analysis used uses the SEM method and the AMOS application program version 22.0. Data variables used in this include quality, brand image, price, and consumer loyalty. These variables form six hypotheses. The results of data analysis show that product quality has a positive effect on brand image, price, and consumer loyalty. Prices have a positive effect on image and consumer loyalty. Image has a positive effect on consumer loyalty.

KEYWORDS: quality, price, brand image, consumer loyalty

PRELIMINARY

The big role of technology has had a significant influence on human activities. Electronic media in the current digital era is a reliable source of media for communication. Technology users, especially smartphones, help people to be able to interact, communicate and even carry out activities and business transactions with other people without incurring large costs. In recent years, smartphone technology has developed very rapidly, causing many smartphone technology companies to release their products in various forms. Changes in trends at this time also make people more sensitive to their styles and loyalties, one of which is among young people.

Customer loyalty is defined as the strength of the relationship between the client's relative attitude and trade repurchase.

Customer loyalty is also described as a strong ongoing commitment to repurchase preferred products/services consistently in the future, thereby creating repeated purchases of products or brands (Dam & Cuong, 2021). The importance of customer loyalty is closely related to the continued viability of the business and the influence of future growth (Kim *et al.*, 2004). There are several factors that affect consumer loyalty, namely perceived quality, brand image, price (Susanto *et al.*, 2019). In order to achieve the company's goals in getting customers who are loyal to the product, it is necessary to perceive quality.

According to Susanto *et al.*, (2019) Customers want good quality products at affordable prices that they can buy easily and if there are companies that provide these to customers, the company will build good long-term relationships with customers. Price is a psychological factor from various that has an important influence on consumer reactions in making purchasing decisions (Havidz & Mahaputra, 2020). Apart from being accepted as a nominal value, price is also used as a large comparative reference against the customer's background. The price balance with the quality of the product provided also affects the brand image. Lourenço *et al.*, (2015) has proven that price has an effect on image

Brand image has a positive effect on consumer loyalty (Ozora & Stiefanie, 2012). Brand image is a set of beliefs, ideas and impressions that an individual has towards an object, which makes a product class or grade in the scope of society. Brand image is very important for a product, which will form a certain impression for consumers about the product. According to Yogyakarta Central Statistics Agency (BPS) data, the number of teenagers in Yogyakarta at the last 2020 census counted around 22 682.4 people, where this data shows that the number of youths is greater than the number of other people. From this amount, it can be ascertained that more than 50% of teenagers in Yogyakarta use Iphone gadgets.

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LITERATURE REVIEW

Consumer loyalty

According to Kasiri *et al.*, (2017) Consumer loyalty is defined as a customer's commitment to a product, and does not easily switch from one product to another, even if the same product is offered in the future. Loyalty becomes a means to build commitment between the company and the customer. Loyal consumers can increase profits through routine and periodic transaction processes within a company (Month, 2016). Increased profit due to increased revenue, reduced costs to get customers and price sensitivity as well as improved management and financial performance are the benefits of customer loyalty (Albari & Mardawasti, 2007)

Perceived Quality

Perceived quality or *perceived quality* is one of the determinants of whether consumers will buy a product or not. Quality products are a consideration for consumers when making their choices. Perceived quality is the customer's perception of the overall quality or superiority of a product or service related to what is expected by the customer (Durianto, 2011). Because perceived quality is the perception of the customer, it cannot be determined objectively. Customer perception will involve what is important to customers because customers have interests that are measured relatively differently to a product or service (Khasanah, 2014).

Product quality is a characteristic of a product provided to customers. With the good quality of a company's products, loyal customers are created which will increase profit opportunities and broad market share coverage for the company. The determining factor for success in creating loyal customers is that the company is able to create customer satisfaction (Pramudyo, 2012). Tri Yunanto (2010) found a positive and significant relationship between perceived quality. The results of Arokiasami's research (2010), product quality has a positive and significant influence on customer loyalty. This indicates that companies that want customers to have high loyalty must maintain and improve the quality of their products and services. Then the hypothesis is determined:

H1: Perceived Quality Has a Positive Effect on Consumer Loyalty

The perception of good quality can help all elements of a marketing program be more effective. Perceived high quality will make the advertising and promotion process more effective. When a brand has a good image in the eyes of consumers, it can influence the perception of quality. A good image in the eyes of consumers, it can affect the perception of quality. Perception is an important factor in understanding consumer buying behavior. According to Muhammad Sabbir (2012) perception is included in how consumer behavior towards brand image in choosing the desired product. Consumers will see the product in terms of quality, and the image they have. According to Anandia's research (2015) perception plays an important role in strengthening the brand image that will be generated in the minds of consumers. So that the perception of quality becomes one of the factors consumers prioritize brand image. Then the hypothesis is determined:

H2: Perceived Quality Has a Positive Influence on Brand Image

Price

Price is a value that states the amount of money charged for a product or service (Denniswara, 2016). Price is the only element of the *marketing mix* that generates sales revenue, while the other elements are only cost elements. An appropriate price does not mean a cheap and affordable price, but the perceived value is appropriate at the time the transaction is made. In economic theory it is stated that the price of a good or service whose market is competitive, the high and low prices are determined by market demand and supply.

According to Bei and Chiao (2001) price is something that is given or sacrificed by someone to gain profit from a product. Many consumers think that if a product is of high quality, the price of the product will also be high. Price is also considered as an indicator of value, if the price is related to product quality, then consumers will feel the benefits of the product itself, and cause its value to increase (Purnamasari, 2015). A product that is the same can be considered differently and responded to differently by consumers simply because of the difference in price given. Then the hypothesis is determined:

H3: Perceived Quality Has a Positive Effect on Price

Theoretically, the relationship between price and customer loyalty is shown by the opinion of Santika *et al.*, (2019) which states that customers will be loyal if companies set product prices that are proportional to the value of the benefits provided to customers. Price is an important factor for consumers in making purchasing decisions for products. The higher the price of a product, the less the number of requests for the product, and vice versa if the customer feels a match with the price offered, the customer will make a purchase of the product. Price has a positive effect on customer loyalty (Tomida and Satrio, 2016). Followed by Bulan (2016) which states that price has a significant effect on customer loyalty. then the hypothesis is

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determined:

H4: Price Has a Positive Effect on Loyalty

Price can contribute to the brand image of a product in the eyes of consumers. Some of these considerations include costs, competition, profits and changes in market demands (Hamdi, 2019). Moenroe (1990) argues "price is an economic sacrifice made by customers to obtain products or services". Pricing is very complicated and difficult to understand, so transparency in pricing plays an important role in creating a brand image. Low prices are used to form an image of value. Faliyah (2013) concluded that the price variable has a significant effect on the brand image of a product. Lourenco *et al.* (2015) proved that price has an effect on image.

The results of research conducted by Albari & Kartikasari, (2019) price has a significant effect on the brand image of a product. Then the hypothesis is determined:

H5: Price has a positive effect on brand image

Brand Image

According to Kotler & Armstrong (2013) brand image is a set of beliefs or beliefs held by customers towards a product. The image of a brand is the second dimension, but customers usually develop brand trust to know the identity of the product itself (Sangadji, 2010). Brand image is related to attitudes in the form of beliefs and preferences for a brand. A well-managed brand image will benefit the company. By creating a good impression for the company will foster consumer confidence in the product. Brand image is a form of the totality of impressions that exist in the minds of consumers. Image can support or undermine the customer's perceived value, and therefore image can affect loyalty. Brands that have a positive impression on consumers' views will create a sense of pride for the consumers themselves, so that it will have an impact on loyalty (Muhammad Rizan, 2012). A very good image can represent a product on the market, so it will further enhance the name of the product in the minds of consumers. According to Rangkuti (2006) customers who think that certain brands are physically different between companies, if these customers already like and feel satisfied with the brand, it will stick continuously so as to form loyalty to the brand. then the hypothesis is determined:

H6: Brand image has a positive effect on consumer loyalty

RESEARCH FRAMEWORK

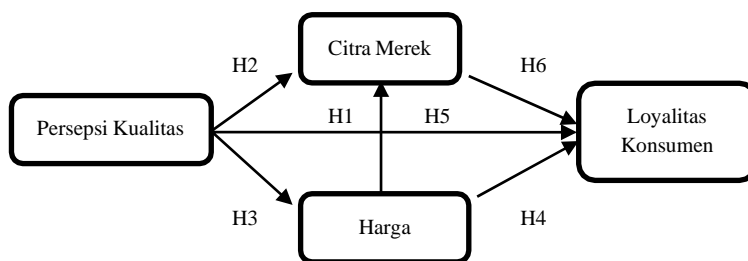


Figure 1. Research Framework

Based on the literature review, a research framework is obtained that explains the perceived quality variable which will have a positive influence on brand image, price and consumer loyalty. The price variable has a positive effect on consumer loyalty and brand image. Then the brand image variable has a positive effect on customer loyalty.

RESEARCH METHODOLOGY

Research conducted in Yogyakarta; this research was conducted using quantitative methods. Furthermore, there are many iPhone sales centers in Yogyakarta, such as iDevice, Apple Showroom, iBox, iCorner, and Emax, which are referred to by teenagers. The number of stores selling smartphones is felt to make it easier to do research. In this study, the population was adolescents aged 17-22 years who were using iPhones in Yogyakarta. This research sample selection using non-probability sampling method. According to Malhotra (2010) the non-probability sampling method used is a sampling method where all elements in the population do not have the same opportunity to be selected for sampling. Then the technique used in this sampling method is convenience sampling in which sampling is carried out by chance and can be found according to what is needed. This sampling technique was applied to respondents via Google Form. With the right number of samples, it can be calculated using a manual formula, at least 5 x number of items and a maximum sample of 10 x number of items (Ferdinand, 2006). The analytical method can be used to determine the sample size. The number of samples that

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will be needed if the analysis model uses *structural equation modeling* (SEM) with the AMOS application program version 22.0 (Gozali, 2011). Approximately 166-200 respondents, so that the results of the model testing the influence of a variable on other variables can be obtained simultaneously. To get a good model, the test must fulfill the procedures that must be carried out first, namely according to the criteria of *Goodness-of-Fit*.

ANALYSIS RESULTS

Before the research was carried out, the instrument used to collect the actual data was first tested/try out the instrument, to determine the level of validity (validity) and reliability (reliability).

Validity test is used to measure whether or not a questionnaire is valid. The process of measurement is to test the accuracy of the items in each question to carry out the 33 measuring functions where the smaller the variance of the error, the more valid the measuring instrument. A data is said to be valid if the questions in the questionnaire can reveal something to be measured by the questionnaire (Ghozali, 2015). The validity of an instrument if it can measure what it wants. Therefore, item analysis was carried out using the Pearson *product moment* correlation method (*r*). Correlating the score of the answers obtained on each item with the total score of all items is a validity test method. A significance level of $\alpha = 5\%$ is used in the validity test of this study. The reliability of the variable construct is the reliability level of the questionnaire revealing the research variables. The reliability of a data if a person's answer to a question is stable or consistent from time to time according to (Ghozali, 2015). *Cronbach Alpha* from the results of data processing with the SPSS program is the method used in measuring reliability. A question is declared reliable if the alpha coefficient value is greater than 0.6 (Sekaran and Bougie, 2013).

According to Ghozali (2014) the minimum factor loading is ≥ 0.5 or ideally ≥ 0.7 . If there is a value that is still below 0.5 it will be *dropped* and excluded from the analysis. Test the validity of the research data using AMOS version 24 where the entire list of questions is complete to represent each variant being tested. The factor loading values for all research indicators show a value of > 0.5 , thus all question indicators representing all variables are declared valid

Table 1. Validity Test Results and Reliability Tests

Variable	Item	Factor Loading	Information	Construct Reliability	Ket
Perceived Quality	The performance of iphone products is very good	0.805	Valid	0.954	Reliable
	The applications provided on iPhone products are easy to use	0.813	Valid		
	iPhone products have very good color resolution	0.821	Valid		
	iPhone smartphone products can be used for more than 2 years	0.840	Valid		
	The response and speed of iPhone smartphone products is very good	0.699	Valid		
	iPhone smartphone products have attractive designs and features	0.864	Valid		
	iPhone smartphone products are not easily damaged	0.835	Valid		
	iPhone smartphone products have clear sound	0.805	Valid		
	The quality of the iPhone smartphone camera has sharp colors and satisfying results	0.872	Valid		
	iPhone smartphone battery life is very good	0.855	Valid		
Brand Image	The name of the iPhone smartphone is well known to many people	0.859	Valid		

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	The iphone brand has a brand image according to product quality	0.869	Valid	0.961	Reliable
	The iphone brand has a positive brand image in the eyes of consumers	0.872	Valid		
	The iphone brand has a classy and exclusive feel to the customers	0.891	Valid		
	Iphone smartphone brand is easily remembered by customers	0.868	Valid		
	Brand iphone smartphones increase self- confidence	0.899	Valid		
	The iPhone smartphone brand has its own characteristics in each of its products	0.919	Valid		
Price Perception	Iphone has an affordable price compared to other smartphone brands	0.829	Valid	0.935	Reliable
	iphone has conformity product price with product quality	0.759	Valid		
	iPhone smartphone prices can compete with other brands	0.794	Valid		
	iphone prices according to exclusivity	0.815	Valid		
	The price of an iPhone smartphone is in accordance with the benefits obtained	0.848	Valid		
	The price of an iPhone smartphone is in accordance with the quality of service provided	0.811	Valid		
Loyalty	I will make repeated purchases of iphone smartphone products	0.774	Valid	0.941	Reliable
	I am not easily influenced by products other than iPhone smartphones	0.816	Valid		
	I will recommend iphone smartphone products to others	0.835	Valid		
	I have no intention of moving to another smartphone product	0.812	Valid		
	I will refuse and not be affected if offered another smartphone product	0.865	Valid		
	I will make a repurchase if the iPhone releases another product	0.892	Valid		
	I will follow various types of iPhones product developments	0.839	Valid		

Table 2: Goodness of Fit Test Results

<i>Goodness of fit index</i>	<i>Cut-off values</i>	Research Model	Model
X2- Chi Square	Expected small	612,028	Marginal Fit
RMSEA	≤0,08	0.051	Good Fit
GFI	≥0,90	0.827	Marginal Fit
AGFI	≥0,90	0.799	Marginal Fit
CMIN/DF	≤2,00	1,430	Good Fit
TLI	≥0,90	0.960	Good Fit
CFI	≥0,90	0.963	Good Fit

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goodness-of-fit measurement table, there are two indices that show marginal fit. However, the model proposed in this study is still acceptable because the scores and CMIN/DF, RMSEA, CFI and TLI all meet the *fit criteria*. Furthermore, based on the existing data values in the validity and reliability variables contained in table 1, it can be used to test the research model so that the results of the *goodness of fit* research model can be obtained. The test results can be summarized in table 2.

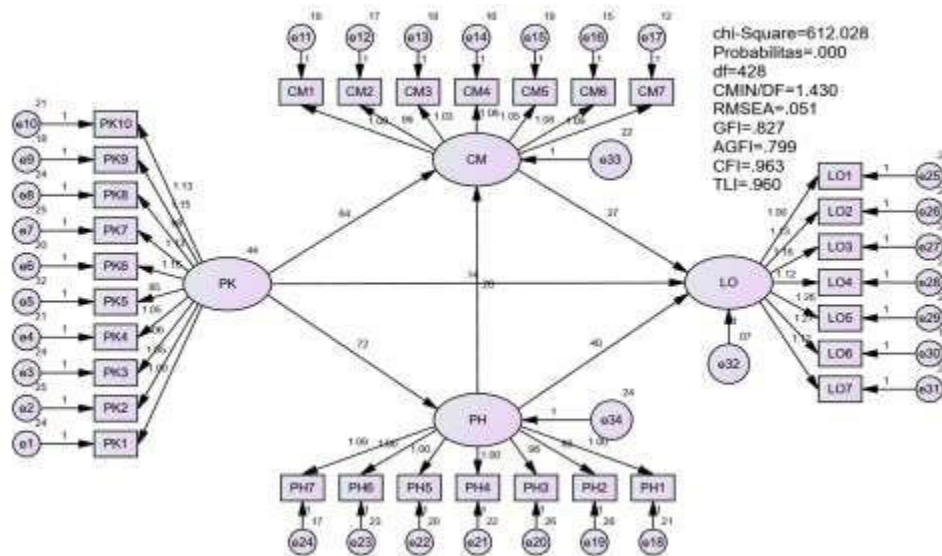


Figure 2: Structural Equation Model Results

Table 3: Hypothesis Test Results

No	hypothesis	Estimates	CR	P	Limit	Information
1	Perceived Quality Has a Positive Influence on Consumer Loyalty	0.142	2,038	0.042	0.05	supported
2	The Effect of Perceived Quality on Brand Image	0.636	6,376	0.000	0.05	supported
3	Influence Perceptions of Quality Against Price	0.721	8,618	0.000	0.05	supported
4	Price Effect on Consumer Loyalty	0.402	6,035	0.000	0.05	supported
5	Effect of Price on Brand Image	0.263	2,953	0.003	0.05	supported
6	Brand image has a positive effect on consumer loyalty	0.369	5,786	0.000	0.05	supported

Based on Table 3 above, the results of the *regression weight test* can be seen which can explain the coefficient of influence between relevant variables. The results of the *regression weight analysis* show the following:

a. Effect of Perceived Quality on Consumer Loyalty

The estimated parameter value of the *regression weight coefficient* is 0.142, which indicates that the effect of Perceived Quality on Consumer Loyalty is positive. This means that the better the perceived Quality Perception will be able to increase Consumer Loyalty. Testing the influence between variables shows a CR value of 2.038 > 1.96 and a probability value of 0.042 (p < 0.05), so hypothesis 1 which states Perceived Quality Has a Positive Influence on Consumer Loyalty is proven.

b. The Effect of Perceived Quality on Brand Image

The estimated parameter value of the *regression weight coefficient* is 0.636, which indicates that the effect of perceived quality on brand image is positive. This means that the better the perceived Quality Perception will be able to improve the Brand Image. Testing the influence between variables shows a CR value of 6.376 > 1.96 and a probability value of 0.000 (p < 0.05), so hypothesis 2 which states Perceived Quality Has a Positive Influence on Brand Image is proven.

c. Perceived Quality Influences Perceived Price

The estimated parameter value of the *regression weight coefficient* is 0.636, which indicates that the effect of Perceived Quality on Perceived Price is positive. This means that the better the Perceived Quality will be able to increase the Perceived Price. Testing the influence between variables shows a CR value of 8.618 > 1.96 and a probability value of 0.000 (p < 0.05), so hypothesis 3 which states Perceived Quality Has a Positive Influence on Price is proven.

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d. Price Perception Influences Consumer Loyalty

The estimated parameter value of the *regression weight coefficient* is 0.402, which indicates that the effect of Perceived Price on Consumer Loyalty is positive. This means that the better the perceived Price Perception will be able to increase Consumer Loyalty. Testing the effect between variables shows a CR value of 6.035 >

1.96 and a probability value of 0.000 ($p < 0.05$), so hypothesis 4 which states Price Perception Has a Positive Effect on Consumer Loyalty is proven.

e. The Effect of Perceived Price on Brand Image

In the fifth hypothesis, the estimated parameter value of the *regression weight coefficient* is 0.263, this indicates a positive influence of Price Perception on Brand Image. This means that the better the perceived Price Perception will be able to improve the Brand Image. Testing the influence between variables shows a CR value of 2.953 > 1.96 and a probability value of 0.003 ($p < 0.05$), so that hypothesis 5 which states that price perception has a positive effect on brand image is proven.

f. Effect of Brand Image on Consumer Loyalty

The estimated parameter value of the *regression weight coefficient* is 0.369, which indicates that the effect of brand image on consumer loyalty is positive. This means that the better the perceived Brand Image will be able to increase Consumer Loyalty. Testing the influence between variables shows a CR value of 5.786 > 1.96 and a probability value of 0.000 ($p < 0.05$), so hypothesis 6 which states Brand Image Has a Positive Influence on Consumer Loyalty is proven.

DISCUSSION

The results of this study indicate that perceived quality has a significant and significant effect on consumer loyalty. The perception of good quality will further increase consumer loyalty to the use of Iphone products. This is in line with the results of previous research by Arokiasamy (2010) which proved that product quality has a positive and significant influence on customer loyalty. Quality that is well perceived by consumers is obtained from their experience in using the product. The product is considered capable of providing good performance and function according to the needs expected by consumers. According to Kotler & Keller (2009) that if product quality does not meet customer expectations, it will cause disappointment for customers to get the product, whereas for products that have good quality, customers will feel satisfied and dependent on the product itself. According to Yunanto (2010) there is a positive and significant relationship between perceived quality and the desire of customers to be able to recommend it to others.

Perceived quality has a positive and significant influence on brand image. This means that the good quality of a product in accordance with the expectations and expectations of consumers will shape the perception and assessment of the product as a whole. In line with previous research by Rizki (2011) which explained that brand image has a significant effect on the dimensions of brand equity, which is caused by a unique, strong and preferred brand image that will bring the brand to a strategic position in consumer memory. Iphone products are considered to have good quality by consumers as users. The overall performance features and capabilities offered are able to meet consumer expectations in meeting their needs as a *smartphone*. Consumers' better-quality perceptions of Iphone products create a positive brand image in society.

The results also show that perceived quality has a positive impact on consumer perceptions of price. This result means that the perception of good quality has a positive impact on the price perception felt by consumers on Iphone products. In line with the results of previous research by Nurvica (2018) which showed that product quality has a positive effect on price perceptions. Consumers always expect that the goods or products they buy and use have good functional performance and are useful as they should be. According to Purnamasari (2015) said that price has a relationship with the benefits that consumers feel for the product they buy. Consumers have a tendency to be willing to buy products that they feel have good quality and have functions that suit their needs. Consumers feel that Iphone products have good benefits and functions and are in accordance with the price they have to pay.

Price perception has a positive and significant impact on consumer loyalty. This means that the better the price perceived by consumers, the higher consumer loyalty will be in using Iphone products. According to Tomida and Satrio (2016) said that price has a positive effect on customer loyalty. Price is an important factor that is considered by consumers to purchase a product and use it continuously. Consumers will evaluate by comparing the price they have to pay with the benefits of the product they get. According to Santika *et al.*, (2019) said that consumers will be loyal if companies set product prices that are comparable to the value of the benefits provided to customers. Consumers judge that the price set for Iphone products has matched or even exceeded the benefits they get, this will lead to consumer loyalty to Iphone products.

The results of the study also show that price perceptions have a positive and significant influence on brand image as

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assessed by consumers. This means that the suitability of the price set by the company for goods or products will enhance the brand image of iPhone products that consumers feel. In accordance with the findings of Nurul (2013) who concluded that the price variable has a significant effect on the brand image of a product. The price applied to the product will shape the image circulating in the community. A better brand image will represent a product with product features and capabilities on the market, which will enhance that image in the minds of consumers. A good brand image can contribute to the price given to the product. Consumers consider that the good image of the iPhone brand circulating in the community has a positive effect on the suitability of prices that consumers feel.

The results showed that brand image has a positive and significant influence on consumer loyalty. The point is that the better the brand image of iPhone products circulating in the community will increase consumer loyalty in using the product. Meanwhile, the brand image of a product represents the quality and attributes attached to the product. Brand image will be formed based on the evaluation felt by consumers who have used or are still using the product. A pleasant experience and in accordance with consumer expectations for the benefits provided by the product will affect positive emotions and will ultimately form a good image on the brand. The brand image of iPhone products is considered good by consumers, iPhone is known to have good quality and creates pride in consumers who make them continue to use it.

CLOSING

The results of the research that has been done can be concluded that perceived quality, brand image and perceived price have an influence on consumer loyalty to continue using iPhone products for young consumers in Yogyakarta. iPhone products are considered by consumers to have good quality based on the specifications and features offered to meet consumer needs.

The brand image of iPhone products is also considered well-known by the wider community, especially among teenagers, which creates pride in consumers in using them. The perception of the price of iPhone products is considered to be in accordance with the quality and benefits obtained by consumers. Therefore, it is important for companies or business people to consider product quality, price perception and brand image circulating in the community to maintain consumer loyalty so that they continue to use the products they market and do not switch to competing products.

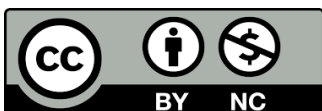
REFERENCES

- 1) Anandia, S., (2015) Analysis of the Influence of Product Design, Perceived Price, and Product Quality on Brand Image to Increase Consumer Purchase Interest in Original Adidas Shoes (Case Study in Communities in Semarang City). Thesis. Diponegoro University Semarang.
- 2) Albari & Kartikasari, A. (2019). The Influence of Product Quality, Service quality and Price on Customer Satisfaction and Loyalty. *ASIAN JOURNAL OF ENTREPRENEURSHIP AND FAMILY BUSINESS*, 3(1), 49-6
- 3) Tomida, M., & Satrio, B. (2016). The Influence of Price and Brand Image on Customer Loyalty of Yongki Komaladi Footwear Products in Surabaya. *Indonesian College of Economics (STIESIA) Surabaya*, 5, 15.
- 4) Yunanto, A., (2010). The Effect of Service Quality Dimensions on Customer Loyalty at Pt Bank Danamon Surakarta with Customer Satisfaction as a Mediating Variable. *Thesis. UNS- Postgraduate Program. Master of Management Studies*
- 5) Santika, T., Wilson, K., Meijaard, E., Budiharta, S., Law, E., Sabri, M., Ancrenaz, M., & Poh, T., (2019). Change landscapes, livelihoods and village welfare in the context of oil palm development. *The University of Queensland, School of Biological Sciences, Brisbane, QLD, Australia.*
- 6) Santika, W., Cardia, RD, & Respati, NN, (2019). Effect of product quality, price and promotion on customer loyalty. *Management journals*. 8(11)
- 7) Sangadji, EM and Sopiah. 2010. Research Methodology. Yogyakarta: CV Andi: Grab it, Freddy. 2006. *Measuring Customer Satisfaction*. Jakarta: PT Gramedia Pustaka Utama. Pramudyo Anung. 2012. The Effect of Brand Image on Loyalty Through Satisfaction as Intervening, *JBMA*, Vol.01 No.1.
- 8) Muhammad Rizan, et al. 2012. The Influence of Brand Image and Brand Trust on the Brand Loyalty of Botol Sosro Consumer Survey of Botol Sosro Tea at the Food Court Itc Cempaka Mas, East Jakarta. *Journal of Indonesian Science Management Research*. 3(1), 1-17.
- 9) LOURRENCO, CJS, GIJSBRECHTS, E., & PAAP, R. (2015). THE IMPACT OF CATEGORY PRICES ON STORE PRICE IMAGE FORMATION: AN EMPIRICAL ANALYSIS, *JOURNAL OF MARKETING RESEARCH* 52(2), 200-2016.
<https://doi.org/10.1509/jmr.11.0536>
- 10) Khasanah, SN (2014). Effect of Tax Knowledge, Tax Administration System Modernization, Taxpayer Awareness of Taxpayer Compliance at the Regional Office of the Directorate General of Taxes, Special Region of Yogyakarta.

Perceptions of Quality, Price and Brand Image Affect the Loyalty of Yogyakarta Adolescent Consumers in Using Iphone Products

Yogyakarta State University.

- 11) Kim, M., Park, MC and Jeong, DH (2004) The Effects of Customer Satisfaction and Switching Barrier on Customer Loyalty in Korean Mobile Telecommunication Service. *Telecommunication Policy*, 28, 145-159
- 12) Kasiri, AL, Cheng, GTK, Sambasivan, M., & Md. Sidin. S. (2017) Integration of Standardization And Customization: Impact On Service Quality, Customer Satisfaction, And Loyalty. *Journal Of Retailing And Consumer Services*, 35, 91-97 . <https://doi.org/10.13106/jafeb.2021.Vol8.No3.0585>
- 13) Havidz, HBH, & Mahaputra, RM (2020). Brand Image and Purchasing Decision: Analysis Of Price Perception And Promotion (Literature Review Of Marketing Management). *Dynasty International of Economics, Finance & Accounting*, 1(4), 2721-3021. <http://doi:10.38035/DIJEFA>
- 14) Hardi, RR, Susanto., & Handayani, DS (2019). Measuring Student Loyalty on Branded Smartphones in Indonesia. *European Journal of Business and Management*, 11(12).
- 15) Ghozali, Imam. 2016. Application of Multivariate Analysis with the IBM SPSS 23 Program (Edition 8). VIII printing. Semarang: Diponegoro University Publishing Agency.
- 16) Falihah, Nurul. (2013) Effect of Marketing Mix Strategy on Brand Image Formation and Impact on Consumer Purchase Decisions of Hotel X Jakarta. *Thesis. Faculty of Economics, Jakarta Open University*.
- 17) Dam, S. M & Cuong, TD (2021). Relationships between Service Quality, Brand Image, Customer Satisfaction, and Customer Loyalty. *Journal of Asian Finance, Economics and Business*, 8(3), 585-593. <http://doi:10.13106/jafeb.2021.vol8.no3.0585>
- 18) Denniswara, EP (2016). The Effect of Product Quality, Price and Promotion on Intention to Repurchase My Ideas Products. *Journal of Business Management and Start-Up*, Vol. 1, No.4. Ciputra University
- 19) Bei, Lien-Ti. Yu-Ching Chiao. (2001). "Integrated Model For The Effects Of Perceived Product, Perceived Service Quality, And Perceived Price Fairness On Consumer Satisfaction And Loyalty". *Journal Of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*.
- 20) Albari & Mardawasti, R. (2007). THE EFFECT OF SERVICE QUALITY ON CUSTOMER SATISFACTION AND LOYALTY. *BUSINESS APPLICATIONS*, 7(10), 846-859.
- 21) Month, TPL (2016). The Influence of Customer Quality and Price on Consumer Loyalty at Pt Tiki Jalan Nugraha Ekakurir Agent, Langsa City. *Journal of Management and Finance* , 5(2), 592-602
- 22) Central Bureau of Statistics (BPS) Yogyakarta City, Yogyakarta City in Figures 2020



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Prospects of Mapping Alternative Energy Resources Based on Foreign Experiences



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ABSTRACT: This article is based on foreign experiences of mapping alternative energy sources, developing a regional and local level database and maps on the use of alternative energy resources, collecting statistical data on wind, solar, small water flows, geothermal resources, natural and Schematization of socio-economic indicators is dedicated to the analysis of the results of scientists who are conducting certain scientific research works on the use of alternative energy resources in our country today.

KEYWORDS: alternative energy, GIS, NREL USA, electronic database, thematic layers and electric energy.

INTRODUCTION

By the 21st century, natural hydrocarbon resources (coal, oil, natural gas, uranium) are the basis of the world energy balance. In the consumption of energy resources, the world's oil reserves can reach 45-50 years, natural gas - 70-75 years, coal - 165-170 years, lignite - 450-500 years. Therefore, the maximum use of environmentally safe alternative energy resources is one of the most urgent global problems of today.

The analysis of the use of alternative energy resources on a global scale shows that today the European Union countries, the USA, Japan, China and India have achieved high results in the use of non-traditional types of renewable energy. There are more than 2 million solar thermal systems in the world. Israel has more than 800,000 solar installations that provide 70% of its hot water supply. North and South America and some European countries (Denmark, Spain, Portugal, Ireland, Lithuania) widely use wind energy located mainly on the seashore.

Alternative energy resources are versatile and, therefore, their design, deployment, and continuous operation are diverse. However, there is no single opinion about the purpose of creating such technologies in order to evaluate their deployment options - how and where, in which areas and in what quantities. For example, English and Russian researchers have pointed out that wind turbines and devices that use low-level heat are not used for regions with low temperatures in the cold season.

It is necessary to take into account the nature of each place and its socio-economic potential in the use of alternative energy resources in energetic quality. The geographical features of alternative energy resources are clearly shown in the cartographic atlas of the Russian researcher O.S.Popel and S.E.Fr i d. It includes the region's natural resources (climatic indicators, terrain, natural resources, hydrological and hydrothermal resources) and economic status (energy infrastructure, energy balance, power transmission lines, energy-using production sectors, agriculture, etc.) and social indicators (population centers, population density, employment, etc.) are comprehensively reflected. On the other hand, these data must be collected, modernized and displayed, transformed and analyzed quickly. Based on this information, the estimated costs are planned by forecasting.

In recent years, comprehensive geographic assessment of alternative energy resources has become extremely important. Because it is urgent to start using wind or bioenergy sources without leaving energy tools idle on days without sun. The use of geoinformation technology tools, including the geographic information system, is very effective in solving the use of hybrid power plants from the territorial point of view. An example of this is the experience of using GIS technologies in the alternative energy resources stations located on the continental shelf of the Netherlands.

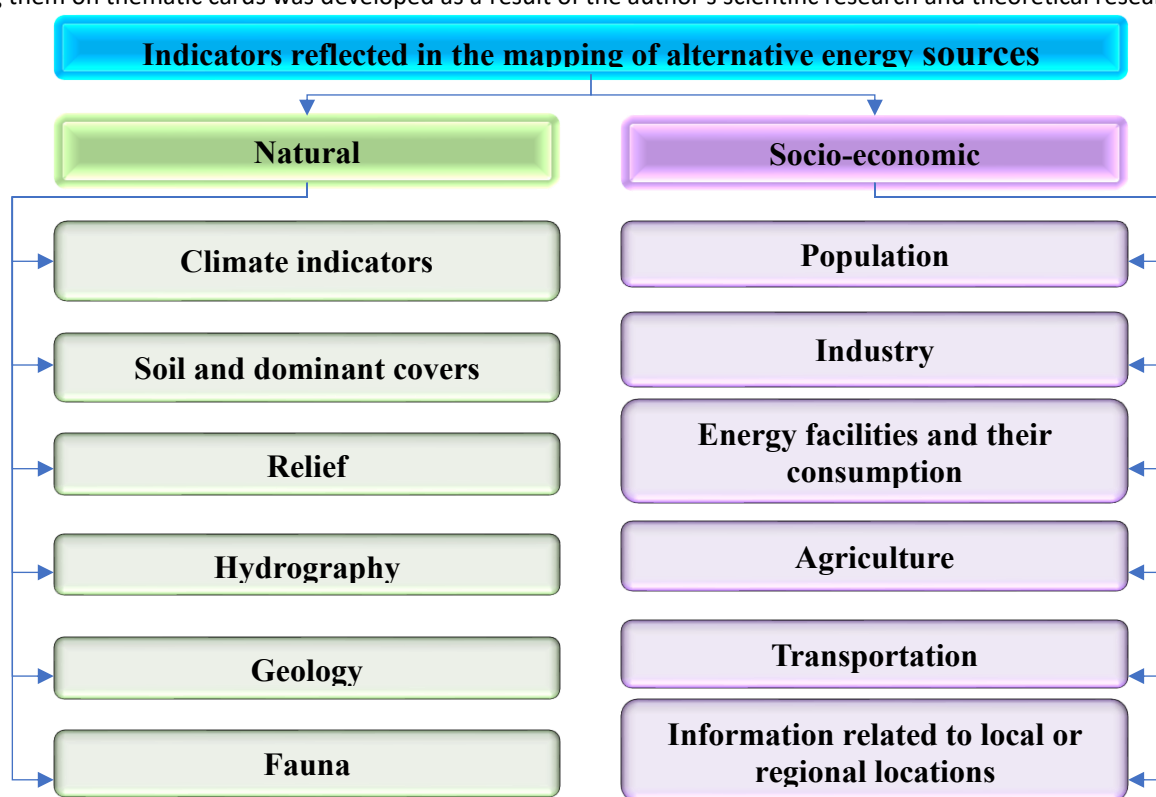
Individual and complex consideration and assessment of various factors through GIS made it possible to forecast not only socio-economic, but also environmental aspects of the placement, construction and operation of electric power facilities.

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Territorial classification through GIS or its consideration and assessment by area: local, regional, national, global scale. In addition, single and multi-component assessment methods are used through GIS.

Examples of alternative energy resource mapping, data visualization, and visualization software products produced by the National GIS include the Vermont Renewable Energy Atlas. The Atlas was created at the US National Renewable Energy Laboratory (NREL USA). It contains maps of natural resource assessment, i.e. alternative energy resources such as bioenergy, geothermal energy, small hydropower, solar and wind energy. But the atlas focuses more on statistics on Vermont's renewable energy facilities and resource components. Therefore, this atlas is aimed at the general public and not for specialists. The shortcoming of US national atlases that reveal possibilities of using alternative energy resources is that they do not fully cover the aspects of environmental safety and limitation of natural resources, and does not make it possible to make relevant local decisions.

In the development of regional and local level databases and maps on the use of alternative energy resources through GIS, first of all, there is the development of its structure, the nomenclature of databases is selected and analyzed. The database of using alternative energy resources with the help of GIS collects statistical data on resources such as wind, sun, small water flows, geothermal; their characteristics, i.e. wind speed, blowing and seasonality by height layers, solar radiation, hydrodynamic indicators of streams and rivers, indicators describing geothermal waters; theoretical modeling is carried out as additional data. In its second stage, the model of creating a database of natural and socio-economic indicators on a local or regional scale and displaying them on thematic cards was developed as a result of the author's scientific research and theoretical research (Fig. 1).



1. Natural and Socio-Economic Indicators in Thematic Cards on the Use of Alternative Energy Resources

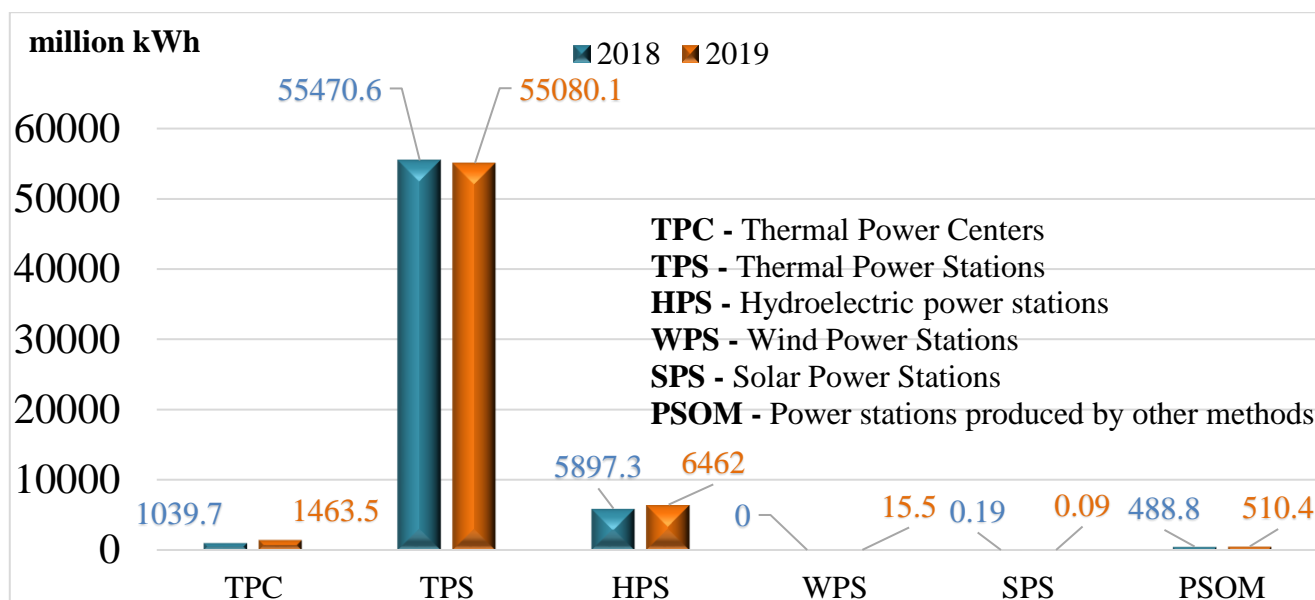
For effective use of alternative energy resources, first of all, modern geodetic and cartographic methods based on it is required to reveal the characteristics of the geographical distribution of renewable energy facilities.

In the Republic of Uzbekistan, the development of electricity and its use in all spheres of social life at the level of modern requirements has become a priority of our state's policy. After all, there is no sector of the economy that can function without electricity.

However, the amount of electricity production in our republic is only 20-30 % of the domestic demand. Although Uzbekistan is one of the ten countries with the largest oil and gas production potential in the world. 50 billion m³ in the country every year since 1997 gas and 8 mln. tons of oil are being produced. But their stock may decrease sharply by the 50-60s of the 21st century. In the energy balance of Uzbekistan, the share of thermal power plants and thermal power centers specializing in coal and natural gas is 90%, and the use of alternative energy resources is somewhat less (Fig. 2).

In our republic, the annual increase of the population by 550-600 thousand people and the growth of industry by 7-8% increased energy consumption by 25% in 20 years. This indicates the need to use alternative energy resources in the production of electricity.

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2. The Role of Alternative Energy Resources in the Production of Electricity in Uzbekistan

In our country today, certain scientific research works on the use of alternative energy resources have been carried out and research is being carried out continuously. For example, M.S. Rudak evaluated the wind and solar energy resources of Uzbekistan and the possibilities of their use. Professor H.T. Egamberdiev In Uzbekistan, he studied the influence of atmospheric clarity on solar energy resources, taking into account anthropogenic factors and showed regional characteristics of solar radiation in national geographical atlases. Sh.E.Zokirov and other scientists covered the scientific and practical aspects of renewable energy development in Uzbekistan. Professor Q. Allaev is conducting research on the technological possibilities of solar and wind energy. Researchers under the leadership of Professor A.A. Azizov evaluated the dynamic state of the natural and ecological properties of atmospheric air. A group of researchers of the National University of Uzbekistan under the leadership of Professor Yu.V.Petrov highlighted the possibilities of solar energy resources for some regional production complexes.

They put special emphasis on the cartographic principles of using helioresources. The creative group headed by G.K. Saidova focused on the economic possibilities of using alternative energy resources in Uzbekistan. S.L. Lutpullaev and H.K. Zaynutdinova are conducting research on the technical and technological possibilities of using solar energy in our country.

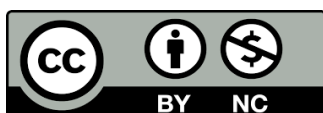
In short, the international and national experience of using alternative energy resources at the regional and local level shows that in order to provide electricity to all sectors of the economy requires rational use of alternative energy resources. For this, not only solving technological problems, but also bringing the legislation to the level of international requirements, providing financial support from the state for relevant projects, analyzing the territorial distribution of various alternative energy resources, first of all, evaluating the possibility of alternative energy resources and determining the rules of deployment is required to carry out geodetic and cartographic research.

REFERENCES

- 1) Abdurakhmanov S.N. Inamov A. Improving the methods of creating objects in the geodatabase // "Agroilm" scientific application of the agricultural journal of Uzbekistan. 5(49) - issue Tashkent, 2017, p. 76-77.
- 2) Abdurakhmanov S.N. Inamov A. Digitization of state geodetic points and connection of objects to these points // Bulletin of the State Committee "Ergeodezkadastr" of the Republic of Uzbekistan. Number 2. - Tashkent., 2013. - 14 p.
- 3) Azizov A.A. and others. "Basic properties and characteristics of atmospheric air as a natural and ecological resource" // Reports of the AS RU. - Tashkent, No. 4, 1998. - S. 13-16.
- 4) Allanazarov O. Cartographic cadastre of communication objects based on GIS technologies - improvement of geodetic supply. Dissertation 2019. 116 p.
- 5) Global document on the cost of renewable energy, - Paris, 2018, - P.43.
- 6) Zakirov Sh.E. "Issues of development of renewable energy in Uzbekistan" "UzBridge" electronic magazine 2 - issue October, 2019 p. 34 - 46.
- 7) Ibragimov O.A., Abdurashidov Z.A. Future prospects of alternative energy resources in the Fergana Valley: use of solar energy (in the case of the Republic of Uzbekistan). Natural resources of Uzbekistan and their use for the purposes of public welfare. Proceedings of the republican scientific-practical conference. UzNU.-T. 2018. B. 13-15.

Prospects of Mapping Alternative Energy Resources Based on Foreign Experiences

- 8) Ibragimov O.A., Nigmatov A.N., Abdurashidov Z. Teoreticheskie problemy turizma i puti ix reshenia. "Trends and prospective development of tourism in Kazakhstan and Central Asia". Almaty, 2019. p. 395-398.
- 9) Ibragimov O.A., Khikmatov F.Kh., Magdeev Kh.N., Rakhmonov K.R., Khakimova Z.F., Ziyaev R.R., Erlapasov N.B. On the content of the section "Surface waters" of the national atlas of Uzbekistan and monitoring of water resources. International scientific-practical conference "Hydrometeorology, climate change and environmental monitoring: current problems and ways to solve them" - Tashkent., 2021. 21-23 b.
- 10) Ibragimov O.A., Khikmatov F.Kh., Magdeev K.N., Rakhmanov K.R., Khakimova Z.F., Ziyaev R.R., Erlapasov N.B. Contents of the "Surface Waters" section of the "National Atlas of Uzbekistan". Geographical problems and opportunities of tourism and recreation development in Uzbekistan. Republican scientific and practical conference. - Against, 2021, p. 4-8.



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Children's Basic Etiquette Learning in Mobile Application



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ABSTRACT: The level of value and ethical crisis that occurs in children still tend to be found in society. It could be influenced by parenting patterns and observed based on daily interactions (talk and behave). Improving children's understanding can be done through a game because it is considered to be an effective way and able to provide entertainment for children. This research uses the modern method from the Fisher-Yates Shuffle algorithm for randomizing quiz questions because it has linear time complexity and constant space complexity. Based on the results of testing using a questionnaire to 38 respondents, the score of player satisfaction using the GUESS-18 calculation method is 82.08% which is a value with the predicate 'Good'. For the comparison of quiz scores on the pretest and post-test questions given, there were 86.84% of players managed to experience an increase in ethical development after completing learning through the game My Little Adventurer.

KEYWORDS: Children Etiquette Learning; Educational Application; Fisher-Yates Algorithm; Mobile Application

I. INTRODUCTION

Childhood is the first learning tool in a child's formation and personal development that does not escape the attention of parents. Every parent has a role in accompanying the growth of the child's character through daily examples. The first learning for each child is obtained through action and guidance on ethical values given by parents so that it becomes the basis for someone to socialize in the community [1], [2]. The study explained that character education still has many shortcomings. Besides, the strengthening character education program is implemented in schools that have not yet achieved its goals [3]. Factors that can cause an ethical crisis are often found in the case of broken-home families, where no parental example can be shown [4]. On the other hand, children will record attitudes and behaviors that tend to be rude. This is because children can accept the values that parents apply through the way parents talk, behave in daily life, and interact with others or family, as well as living conditions and the surrounding environment [5], [6]. Based on the results of interviews with resource persons who are clinical psychologists for children and adolescents, it is stated that currently, there are still many children who do not understand ethics. The factors that influence this can come from parenting patterns that tend to give everything the child wants or wants. Lack of interaction with children, besides technological developments, is also one of the influences because a lot of information is received. Still, only a little can be filtered to allow children to accept bad things.

This study focuses on children's cognitive development in the concrete operational stage, which can be observed between seven and eleven years old [7]. The choice of research at the concrete operational stage is because the child already has logical thinking, and they can understand real or concrete problems that are displayed through real events that can be experienced in everyday life [8], [9]. At this stage, the child can think systematically so that able to determine the next step to complete the game. Playing is one of the activities that are important for children because they can encourage children to express what they feel and make a child able to get fun and joy as well as learn both in their physical, intellectual, social, moral, and emotional development that can be obtained through a series of activities carried out [10], [11]. Therefore, games are considered to be an effective way of learning to provide information on an aspect so that children will learn more by doing it as a form of entertainment [12]. Through the game, players' feelings can be influenced through interesting displays, animations, and stories [13], [14].

The implementation used in-game uses the Fisher-Yates Shuffle Algorithm which is used to generate random permutations from a finite set [15]. The set is a collection of quiz questions related to the learning material delivered through the given game scenario. This algorithm was chosen because it is suitable for use in randomized numbers. The Fisher-Yates Shuffle version of the modern method algorithm is considered the most optimal algorithm [16]. This can be noticed through its space and time complexity, where all executions for generating, swap, and decrement are performed in the same or constant space and are repeated n times, resulting in the same time complexity as $O(n)$ and the same space complexity as $O(1)$ [17]. To identify the child's understanding in

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capturing the learning delivered, parents can observe it through every quiz answer that the child has done. The design of the game that was built and the types of quiz questions given have been adjusted according to the results of personal interviews with clinical psychologists for children and adolescents so that the game that was built has been adapted and is suitable to be played for children aged seven to eleven years. The results of player or child satisfaction will be measured using GUESS-18 which consists of 18 questions and nine constructs [18]. The game development was carried out to achieve the development of children's ethics using the Fisher-Yates Shuffle algorithm. Furthermore, an evaluation was carried out to determine the level of child satisfaction after playing the game using the Game User Satisfaction Scales (GUESS) method. In addition, it aims to increase children's understanding of ethics through educational games

II. LITERATURE STUDY

A. Ethics and Cognitive Development

According to the Big Indonesian Dictionary, ethics is a system of values or moral norms that serve as guidelines for a person or group to behave and act so that it can be interpreted as the science of good and bad that is accepted in society. In Greek, ethics comes from the word ethos, which means custom [19]. There are two ethics divisions, descriptive and normative ethics [20]. Cognitive can be interpreted as "cognition," which means a process of understanding everything that is obtained from the environment [7], [21]. In its development, the term cognitive became part of human psychology related to the level of understanding, consideration, and execution of information and problems centered on conation (will) and affection (feeling) [8], [10]. Cognitive development has a high relationship with intellectual development or brain function by being a determinant in improving the ability to think [9]. Without the cognitive aspect, a child will have difficulty understanding and carrying out the proper execution of information obtained through learning provided by the family and community environment [4], [10]. One of the figures who formulated the theory of cognitive development is Jean Piaget. Piaget conducted research on the stages of change in age from infancy, childhood, to adulthood which makes differences in the ability of individuals to learn through their mindset and reasoning. In addition, cognitive development can be formed because of the interaction between the individual and the environment so that it will indirectly shape the child's personality from attitudes and behavior through the thinking process that occurs [22], [23]. There are stages of cognitive development which are divided into four stages, namely the sensorimotor stage (0-2 years), the preoperational stage (2-7 years), the concrete operational stage (7-11 years), and the formal operational stage (12 years and over) [24].

B. Fisher yates shuffle algorithm

The Fisher-Yates Shuffle algorithm is named after Ronald Fisher and Frank Yates. In addition, this algorithm is known as Knuth Shuffle, which comes from the name of Donald Knuth, an algorithm to obtain random new sequence results from a finite set. Fisher-Yates is considered the most optimal and widely used among other randomization algorithms [15]. The Fisher-Yates algorithm consists of two methods, original methods and modern methods. This study used the modern method, which is an appropriate method for use on a computerized system because it has good results more optimal. It can be noted that the execution used to generate random numbers, exchange, and subtraction entirely runs on space or the same place, and then do a loop or repeated n times. Therefore, it can be concluded that the Fisher-Yates Shuffle algorithm has complexity linear time or time complexity $O(n)$ and space complexity which is more efficient because it does not require extra space and all steps are performed in the same place or array so that obtaining space complexity is constant $O(1)$ [17]. The following step is a randomization step performed on the Fisher-Yates Shuffle algorithm with the modern method.

1. Prepares a array containing the numbers 1 through N.
2. Choose a random number K between one and the number that has not been selected.
3. Starting from the bottom to swap between the selected number and the last number in the array, and the selected number is inserted into a temp array to be stored.
4. Repeat the second and third steps until all numbers have been eliminated.
5. The order of the randomization results is in array temp.

III. METHODOLOGY

The research methodology for "Design and Development of Game for Children's Ethical Development using the Fisher-Yates Shuffle Algorithm" use the Waterfall research method with the following steps. The first step is requirement gathering and analysis. In this step, the literature studied included understanding the theory of cognitive development, the Fisher-Yates shuffle algorithm, Likert scale calculations, and the GUESS method, a discussion of the elements contained in game, and others. Furthermore, collecting information related to research topics regarding the role of the game for children as the basis for the

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development of the game My Little Adventurer through a personal interview process conducted with a clinical psychologist of children and adolescents named Mrs. Natalia M.Psi through the application Halodoc, she stated that ethical problems in children are currently being taken seriously. The lack of children recognizing ethics can be caused by several things, such as parents’ busyness with their work and inappropriate parenting patterns that can be noticed through parents’ tendency to always obey their children’s wishes. In addition, technological advances also impact because large amounts of information can enter freely and are not thoroughly filtered for children. The second step is design, where at this stage, an analysis is carried out regarding the required information, such as game elements consisting of formal and dramatic elements. Next, the creation of a flowchart, and interface design, to the creation of each asset used in-game.

The third step is implementation, where after designing the game, the game is made using Unity Game Engine 2D and C# language on the platform Android. At this stage, the Fisher-Yates Shuffle algorithm will be implemented in part of the game. The fourth step is integration and testing, where at this stage, testing is carried out on every function contained in the game that has been made to find out if the overall design is appropriate and running well. The fifth step is verification, where in the verification stage is divided into two measures. Firstly, evaluating using the GUESS-18 method. Secondly, the pretest and post-test stages. Evaluation using the GUESS-18 method is a calculation based on the results of the questionnaire that has been obtained and then conclusions are drawn to determine the level of player satisfaction, while in the evaluation stages pretest and post-test are used to compare against the results of quizzes conducted on players before and after players complete the given learning topics. This is used to see players’ level of understanding and development toward ethical learning. The last step is operation and maintenance, where at this stage, the game has been completed and maintenance is carried out to provide fixes for errors that were not found before.

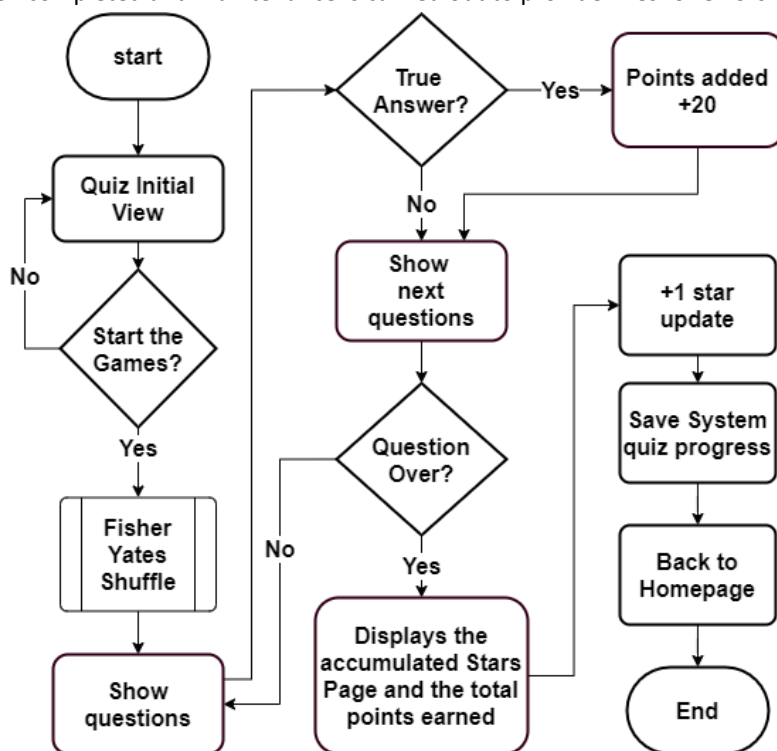


Fig 1. Flowchart Quiz

Figure 1 shows a quiz module for pretest and post-test quiz workflows. First, the quiz start page will be displayed. When the player does not select the start option, then nothing happens. Otherwise, the Fisher-Yates Shuffle module will be executed if the player selects the start option. Next, the questions will be displayed and a check is made on the answers chosen by the players. Then, it will continue to display the next question and check the number of questions, if the number of questions has not been exhausted, then the questions will continue to be displayed. However, if the question is finished, it will show that the stars have been collected and update the number of stars added by one.

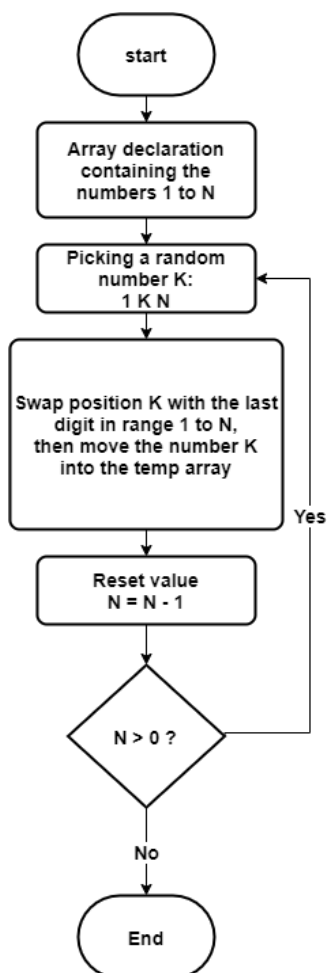


Fig 2. Flowchart Fisher-Yates Shuffle Algorithm

The Fisher-Yates Shuffle algorithm can be seen in Figure 2, where in this algorithm will implement in quiz questions to obtain random array results. First, there will be an array declaration containing the number of questions from 1 to N. Then, a random number K is selected from a range from 1 to N and an exchange is made between position K and the last number in the range 1 to N to be placed in the temp array. After that, the value of N is subtracted. If the value of N is greater than zero, it will be repeated starting from determining the random number K. On the other hand, if the value of N is not greater than zero, then the loop is stopped, and the workflow starts from zero. Fisher-Yates Shuffle algorithm has been completed.

IV. RESULT

The game is designed and developed using the Unity Game Engine on the Android platform. 2D assets are prepared using Clip Studio Paint. The algorithm used Fisher-Yates Shuffle as a random permutation generator to display the quiz questions in the game. Figure 3 is the interface of the Main Menu. In this section, players can choose several options the game provides, including starting the game through New Game or Load Game, Credit, How to play, and Quit Game options.



Fig 3. Result of the Implementation of the Main Menu Interface

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Figure 4 is the interface where players can start the game by selecting the story option or seeing items that can be exchanged through the shop option. In addition, there is a quiz (post-test) option for players to start answering the quiz questions provided.



Fig 4. Result of the Implementation of Homepage Interface

Figure 5 is the interface when the player presses the quiz button on the homepage or when the player does the pretest question given at the beginning of the game. In this section, each question has four multiple-choice answers from A to D. Each time the player chooses an answer, and the next question will continue to be displayed until the question runs out.



Fig 5. Result of the Implementation for Quiz Interface

The entire game process is carried out by the players, while parents or guardians carry out the evaluation process for filling out the questionnaire to represent the players (children) in providing a benchmark for player satisfaction during playing through the Google Form that has been provided. This is done to avoid the difficulty of players in understanding the questions given. Table 1 is the evaluation result using the GUESS-18 method, which can be seen in the average calculation result of each construct.

Table 1. Average Calculation Result of Each construct

Construct	Score (%)	Conclusion
Usability or Playability	83.6	Good
Narratives	81.9	Good
Play Engrossment	75.7	Good
Enjoyment	83.75	Good
Creative Freedom	81.3	Good
Audio Aesthetics	82.1	Good
Personal Gratification	80.95	Good
Visual Aesthetics	87.35	Very Good
Overall Score	82.08	Good

Based on the conclusion of the presentations, the average calculation obtained is based on each construct as an assessment of player satisfaction. In the overall results obtained, the percentage value of 82.08 is the conclusion of obtaining player satisfaction which can be defined as having a good predicate. For the results of the pretest post-test was used to measure the development of knowledge player behavior, where the intended behavior is politeness to others in terms of words, such as saying "thank you", saying "please", and saying "sorry" as well as through helping or ask permission from others. From the results of the pretest and post-test, it was found that there were 33 children out of 38 children that have increase result in ethical development after completing the ethical learning game My Little Adventure. From the result, that can be concluded, there were 86.84% of players who has increase result in ethical development.

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V. CONCLUSIONS

The educational game My Little Adventurer has been successfully designed and built using the Fisher-Yates Shuffle algorithm to randomize the questions in the quiz section. Based on the results of testing using a questionnaire to 38 respondents, the player's satisfaction with the game My Little Adventurer is 82.08% which is a value with the predicate 'Good' where the Visual Aesthetics aspect gets the highest score of 87.35% with 'Very Good' predicate, while the Play Engrossment aspect received the lowest score of 75.7% with 'Good' predicate. Additionally, based on the results of the evaluation of the comparison between the quiz scores on the pretest and post-test questions given, there were 86.84% of players, or equivalent to 33 players out of a total of 38 players, managed to experience an increase in ethical development after completing learning through the game My Little Adventurer

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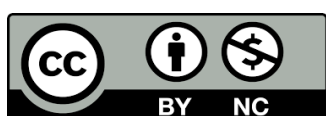
Thank you to the Universitas Multimedia Nusantara, Indonesia which has become a place for researchers to develop this journal research. Hopefully, this research can make a major contribution to the advancement of technology in Indonesia.

REFERENCES

- 1) M. Rizaq, "FAMILY AS CHILDREN ' S FIRST EDUCATION ; THE ROLE OF PARENTS IN THE DEVELOPMENT OF ISLAMIC RELIGIOUS EDUCATION FOR ELEMENTARY SCHOOL AGE CHILDREN KELUARGA SEBAGAI PENDIDIKAN PERTAMA ANAK ; PERANAN ORANG TUA DALAM PERKEMBANGAN PENDIDIKAN AGAMA ISLAM," VOL. 13, NO. 1, PP. 184–208, 2022, DOI: 10.34005/ALRISALAH.V13I1.1785.
- 2) S. O'Shea, "Kids from here don't go to uni': Considering first in family students' belonging and entitlement within the field of higher education in Australia," *European Journal of Education*, vol. 56, no. 1, pp. 65–77, 2021, doi: 10.1111/ejed.12434.
- 3) A. Susandi, I. Ibnu, A. Salam, and M. Arifin, "THE ROLE OF FOSTER PARENTS IN IMPLEMENTING CHARACTER EDUCATION : Case Study of Children of Indonesian Workers in Puspan Village Maron District Probolinggo Regency," *Journal of Islamic Education*, vol. 21, no. 1, pp. 15–22, 2021, doi: <https://doi.org/10.19109/conciencia.v21i1.8452>.
- 4) W. Birhan, G. Shiferaw, A. Amsalu, M. Tamiru, and H. Tiruye, "Exploring the context of teaching character education to children in preprimary and primary schools," *Social Sciences & Humanities Open*, vol. 4, no. 1, p. 100171, 2021, doi: 10.1016/j.ssaho.2021.100171.
- 5) R. H. Weaver, "Predictors of quality and commitment in family child care: Provider education, personal resources, and support," *Early Education and Development*, vol. 13, no. 3, pp. 265–282, 2002, doi: 10.1207/s15566935eed1303_2.
- 6) M. R. DAMIROVICH, T. I. IBRAGIMJANOVICH, and K. N. K. UGLI, "The role of family, community and education in the development of patriotic spirit in youth," *JournalINX*, vol. 7, no. 1, pp. 311–314, 2021, [Online]. Available: <https://www.neliti.com/publications/336405/the-role-of-family-community-and-education-in-the-development-of-patriotic-spiri>
- 7) B. D. (2021). Wiryananta, K., Safitri, R., & Prasetyo, "ToM & ASD: The interconnection of Theory of Mind with the social-emotional, cognitive development of children with Autism Spectrum Disorder. The use of ICTs as an alternative form of intervention in ASD," *Technium Social Sciences Journal*, vol. 7, pp. 312–320, 2020, doi: <https://doi.org/10.47577/tssj.v33i1.6845>.
- 8) W. Masitah and I. D. Pasaribu, "The influence of parenting style of early childhood cognitive development in Tanjung Medan Utara Village," *Proceeding International Seminar on Islamic Studies*, vol. 3, pp. 1223–1229, 2022, [Online]. Available: http://jurnal.umsu.ac.id/index.php/insis/article/view/9783/pdf_393
- 9) M. Roberts, T. Tolar-Peterson, A. Reynolds, C. Wall, N. Reeder, and G. Rico Mendez, "The Effects of Nutritional Interventions on the Cognitive Development of Preschool-Age Children: A Systematic Review," *Nutrients*, vol. 14, no. 3, pp. 1–15, 2022, doi: 10.3390/nu14030532.
- 10) Q. Yang, J. Yang, L. Zheng, W. Song, and L. Yi, "Impact of Home Parenting Environment on Cognitive and Psychomotor Development in Children Under 5 Years Old: A Meta-Analysis," *Frontiers in Pediatrics*, vol. 9, no. September, pp. 1–9, 2021, doi: 10.3389/fped.2021.658094.
- 11) K. N. Paulich, J. M. Ross, J. M. Lessem, and J. K. Hewitt, "Screen time and early adolescent mental health, academic, and social outcomes in 9- And 10-year old children: Utilizing the Adolescent Brain Cognitive DevelopmentSM (ABCD) Study," *PLoS ONE*, vol. 16, no. 9 September, pp. 1–23, 2021, doi: 10.1371/journal.pone.0256591.
- 12) W. Istiono, "Effectiveness of Mobile Game-based Education on Algorithm Thinking: Informatic Engineering Case," *International Journal of Emerging Trends in Engineering Research*, vol. 9, no. 3, pp. 163–168, 2021, doi: 10.30534/ijeter/2021/02932021.

Children's Basic Etiquette Learning in Mobile Application

- 13) V. Georgiev and A. Nikolova, "Virtual reality simulations for presenting cultural-historic content in e-learning for kids," *Digital Presentation and Preservation of Cultural and Scientific Heritage*, vol. 11, pp. 267–272, 2021, doi: 10.55630/dipp.2021.11.24.
- 14) M. Hasbi, A. Munawir, G. Ahmad, Satriani, and U. Khair, "Teaching Vocabulary Using Games : Empowering Students ' Interest in Elt Classrooms," *Journal Abdimas Patikala*, vol. 1, no. 3, pp. 2014–2019, 2022, doi: <https://doi.org/10.51574/patikala.v1i3.290>.
- 15) I. Febriani, R. Ekawati, U. Supriadi, and M. I. Abdullah, "Fisher-Yates shuffle algorithm for randomization math exam on computer based-test," *AIP Conference Proceedings*, vol. 2331, no. April, 2021, doi: 10.1063/5.0042534.
- 16) J. Sampurna and W. Istiono, "Virtual Reality Game for Introducing Pencak Silat," *International Journal of Interactive Mobile Technologies*, vol. 15, no. 1, pp. 199–207, 2021, doi: 10.3991/IJIM.V15I01.17679.
- 17) M. Risnasari, M. A. Effindi, P. Dellia, L. Cahyani, N. Aini, and N. Aini, "Computer Based Test Using the Fisher-Yates Shuffle and Smith Waterman Algorithm," *KnE Social Sciences*, vol. 2021, pp. 353–360, 2021, doi: 10.18502/kss.v5i6.9224.
- 18) L. Laskey, "Space games: evaluating game-based virtual reality in higher education," *4th Symposium on Space Educational Activities*, no. April, pp. 1–6, 2022, doi: 10.5821/conference-9788419184405.057.
- 19) H. Litaly, S., & Serpara, "COMPARATIVE LITERARY WORKS, LANGUAGE LEARNING AND CHARACTER BUILDING OF LEARNERS," *Jurnal Tahuri*, vol. 18, no. 2, pp. 14–23, 2021, doi: <https://doi.org/10.30598/tahurivol18issue2page14-23>.
- 20) M. Hadi, "ETHICS AND LOGIC ANALYSIS IN THE DEVELOPMENT OF SCIENCE, TECHNOLOGY, AND ARTS," *SOSFILKOM : Jurnal Sosial, Filsafat Dan Komunikasi*, vol. 16, no. 1, pp. 87–102, 2021, doi: 10.4324/9780203011355-14.
- 21) S. J. Oppenheimer, "Iron-deficiency anemia: reexamining the nature and magnitude of the public health problem," *The Journal of nutrition*, vol. 131, pp. 616–635, 2001.
- 22) S. Grueso and R. Viejo-Sobera, "Machine learning methods for predicting progression from mild cognitive impairment to Alzheimer's disease dementia: a systematic review," *Alzheimer's Research and Therapy*, vol. 13, no. 1, 2021, doi: 10.1186/s13195-021-00900-w.
- 23) M. A. Saleem Khasawneh, "Cognitive Flexibility of Students with Learning Disabilities in English Language and its Relationship to some Variables," *Shanlax International Journal of Education*, vol. 9, no. 3, pp. 49–56, 2021, doi: 10.34293/education.v9i3.4003.
- 24) Ibrahimov F; Abdurahmanova G; Garayeva G, "COGNITIVE ACTIVITY MODEL OF THE LEARNING STATUS COMPONENT IN THE LEARNING PROCESS," *The scientific heritage*, vol. 88, no. 8.5.2017, pp. 2003–2005, 2022, doi: 10.5281/zenodo.6575808.



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Lean Manufacturing Structural Model for Improving Operational Performance of Diverse Industries



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ABSTRACT: The benefits of employing Lean Manufacturing (LM) on industrial organizational performance is still an ongoing debate. This paper aims to explore the impact of implementing LM techniques on operational performance across different industries in Saudi Arabia. A structural LM model that is consistent with the Toyota Production System (TPS) was presented. For data collection in established companies a structured survey was used. Of the 120 companies contacted, 67 useful responses imply a response rate of 55.8 % were obtained. The structural and operational models have been evaluated using the Social Sciences Statistics Program (SPSS) and SmartPLS 3. The results showed that by implementing the specified LM tools, the operational performance can be enhanced.

KEYWORDS: Lean Manufacturing, Toyota Production System, Structural Equation Model, TPS house, Operational performance.

I. INTRODUCTION

Recently, both international and national regulatory bodies have put pressure on the manufacturing corporations to be sustainable due to concerns about global warming and waste loss [1, 2]. Lean Manufacturing (LM) is a concept or philosophy employed to achieve sustainability, increase competitiveness and improve performance of the organizations [3]. The main specific targets of LM are to maximize value, eliminate waste, and improve productivity. Initially, LM was applied in the manufacturing companies, but later the service sectors such as education, healthcare, hotels and transportation have implemented it [4, 5, 6]. The philosophy of LM matches with the managerial level through a series of steps and practices one of which is the lean bundles. Many of the barriers to effective implementation of LM are people-related such as managers' lack of attention and workers' less motivation [7, 8]. Modern leading countries such as USA, Japan, Canada, UK, Germany, and South Korea have employed LM to improve the operational performance and increase the productivity of their operations and products. On the other hand, developing countries like India, Malaysia, Indonesia, Turkey, Brazil, Thailand, are trying to apply the LM concept for reducing production costs and keeping their products or services highly competitive [7]. However, manufacturing companies in other developing countries have been still struggling and requiring improvement in terms of operational performance and waste reduction [9, 10]. Figure 1 below shows the LM five fundamental principles: value creation, value stream recognition, continuous process flow, production pull and perfection [11, 12]. Value stream mapping (VSM) or process mapping is a very effective tool to figure out where the waste occurs in the process. VSM can simply map all the processes and activities performed to get a certain product or service. It covers all operations from the point of initiation crossing the manufacturing and delivery of the products to the point of purchasing by the consumer [13, 14]. Application of LM can be classified into six fields; planning and control, process and equipment, design, human resources, supplier, and customer satisfaction [15, 16].

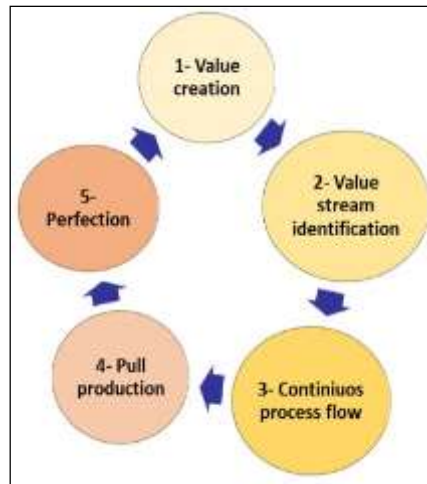


Figure 1. Fundamental principle of lean manufacturing

In 2016 Saudi Arabia presented its vision 2030 as a strategic framework for diversifying its economy, increasing productivity and improving competitiveness of the manufacturing and industrial organizations. However, few efforts have been done for applying LM in both public and private companies. Although many previous researches all over the world have discussed the impact of LM on enhancing operational performance, there is a lack of studies have been applied in Saudi Arabia's industries. Therefore, this paper, seeks to evaluate the influence of LM on operational performance and a structural model was proposed to evaluate and analyse selected organizations.

II. LITERATURE REVIEW

The principles of lean manufacturing have been found by Toyota Motor Company. The main tools that have been used by Toyota included Value Stream Mapping (VSM), Just-in-Time (JIT), and Continuous Improvement. Furthermore, the previous literature discussed the relationship between LM and financial performance as an effective factor of sustainability and waste management [17, 18, 19]. Initially, the term LM was used to compare the Toyota Production System (TPS) with mass production that has been implemented in the Western countries. After the World War II, Toyota had been faced with many problems in terms of labor strikes, and it was on the edge of bankruptcy. Meanwhile, the concept of TPS for eliminating waste in the machining shop had been developed by Taiichi Ohno [20]. The TPS house is now a well-referenced model in most industries around the world [21, 22, 23]. Later, lean activities have been recommended in different fields, including pharmaceutical, electronics, ceramics, aerospace, and the automotive industries [24, 25]. Many researchers [26, 27, 28, 7] focused on the beneficial results and enhancing operational performance that attained when implementing LM tools. For example, the effects of plant size, plant age, and unionization status were examined. In addition, four bundles of interrelated and internally consistent practices; Just-in-time (JIT), Total Quality Management (TQM), Total Preventive Maintenance (TPM), and Human Resource Management (HRM) have been developed [29]. The previous researches showed that lean techniques make a significant contribution to operating performance of the company and explain the variability in operating performance after consideration of the industrial effects and related factors [30]. Salem and Zimmer [31] have investigated the application of lean principles to the construction sector.

Unfortunately, it has not seen such encouraging results. However, the manufacturing sector has experienced productivity and quality improvements with a reduction in cost and lead times. Dal Pont et al [32] conducted a research on selected highperformance manufacturing companies from nine leading countries; the United States, Spain, Japan, Germany, Sweden, Korea, Italy, Austria and Finland. The effects of TQM, JIT, and HRM on operational performance have been investigated. The results showed that the three practices have significant effects on operational performance. The influences of TPM, TQM and JIT on the organizational performances in 64 Brazilian firms have been investigated by Marodin et al. [33]. The analysis showed no significant effect of TQM on measures of operational performance. However, the JIT had a major influence on the turnover of inventories while TPM had a positive impact on the lead time. Fullerton et al. [34] examined the correlation between financial performance and the extent of deployment of JIT technique. The study has been applied on manufacturing companies in the United States. The results indicated that the companies applying JIT realized more profit than those have not been applying it. Several studies showed how HRM practices affect the operational performance of the organization [35]. Nakamura et al. [36] assessed the influence of JIT practices on some key performance measures of various manufacturing industries in USA and Japan. The authors provided an empirical evidence that JIT can enhance six manufacturing plant performance measures: percent downtime, passed percentage, shipped percentage, cycle time, lead time, and inventory. Fullerton and McWaters [37] reported that the implementation of

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continuous improvement, and waste reduction practices improves the organization competitiveness. Certainly, employment of JIT enhances performance through lower inventory levels, lower quality costs and a better response to customers. Lean Production Index (LPI) has been used by Kojima and Kaplinsky [38] to assess the performance of automobile companies in South Africa. The LPI has three elements that comprise of consistency, versatility, and continuous improvement. Mapfira et al. [39] investigated the effect of LM on the performance of manufacturing firms in Botswana. Handling with variation and the lower level of skilled labors considered as the major drawbacks in implementation of LM successfully. Davy et al. [40] found that there is a significant relationship between implementation of JIT and quality of the end product. The literature study performed by Maware and Adetunji [41] indicated that three constructs: JIT, TQM and HRM have been used to establish qualitative models of measurements. It has been noticed that these constructs were correlated with TPS house bundles that are integrated with Flow, People, and Jidoka. Jidoka is a Lean manufacturing principle that means building quality into the process. It is known from the Toyota production system and was established by the Japanese industrial designers. The main objective of Jidoka is to ensure that quality is automatically integrated into the manufacturing or production process. Jidoka helps in detecting and immediately correcting deviations or errors in the production process. As long as a mistake happens Jidoka pauses the process. Many other researchers such as Giorgia Dal Pont et al. [42], Rahman et al. [43], Agus et al. [44], Al-Tahat and Jalham [45], Hofer et al. [46], and Vinodh and Joy [47], also studied the LM effect on operational performance of various industries. Shrafat and Ismail [48] concluded that in developing and underdeveloped countries very limited studies have been conducted on the applications of LM. Marodin et al [49] reported that developed countries are often faced with challenges to become Lean because of changes in market behaviour. Although selecting a common structural model for Lean is typically difficult, few companies in Saudi Arabia adopted the structural model (Toyota Production System; TPS) that developed by Dennis, and shown in Figure 2.

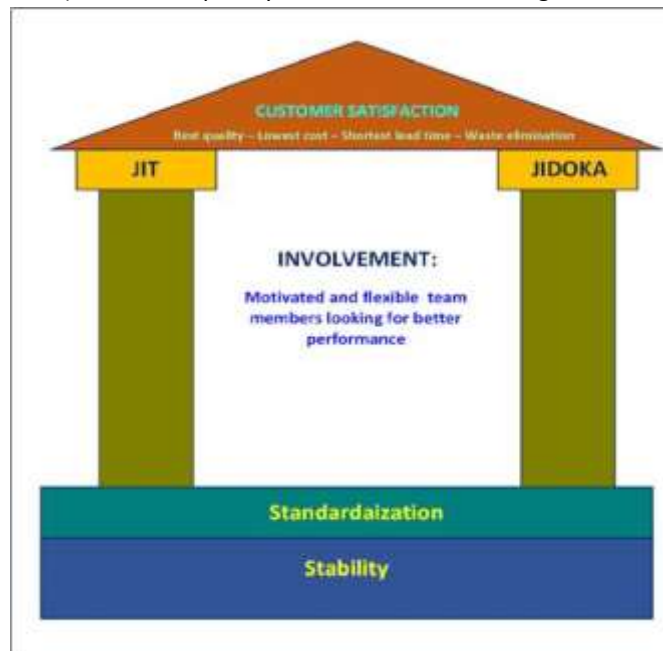


Figure 2. Model of Toyota Production System (TPS)

TPS represents the bases on which all lean practices and resources are built such as standardization and stability, people integration, Jidoka, JIT, and consumer satisfaction. The TPS house mainly aims to improve the stability of the manufacturing systems and the competitive advantage of the firm. Therefore, stability and standardization are the foundation of the house. Stability allows the construction of the pillars (JIT and Jidoka), while standardization permits predictable and stable results. JIT pillar allows the system to run with minimal inventory, and Jidoka causes the system to stop when any fault has been detected [50]. People integration is the heart or core of the house and the involved staff must be flexible and continually pursue change. When applying LM the house's roof gives the final goal of achieving the shortest lead time, lowest cost and best quality [51]. The previous lean models have concentrated on either lumping a variety of lean strategies together or incorporating them independently in the same composite constructions. When lumped together they are called as bundles, constructs, factors, latent structures and dimensions [45, 52]. The abundance of lean models has made it difficult to explore this area. Many authors created models from this massive pandemonium, but their structures were greatly different from each other. Therefore, simply adopting a model from the literature as the acceptable lean structural model is difficult, since authors have constructed various models. This work would look at the use of lean bundles in constructing a model of structural equation.

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A. Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) is a technique that determines and approximates models of linear relationships [53]. The measurements and structural components are the two components for SEM models. The structural model displays the casual link between latent variables. The measurement model consists of the latent variable and their indicator variables. SEM enables researchers to use latent variables to model path analytics, and can validate relationships between measured variables and latent variables [54]. SEM enables researchers to use latent variables to model path analytics, and can validate relationships between measured variables and latent variables. Also, SEM provides a set of reliable and valid relationships that provide a comprehensive explanation of the real scenario. Therefore, it is well appropriate for both theory confirmation and the theory development. The model hypothesis can be assessed against empirical data to show how well it fits the data. The researcher begins by formulating a theoretical model to conduct the SEM analysis, followed by model specification, parameter definition and match evaluation. SEM is one of the most popular approaches used for data processing. The major advantage of SEM is its versatility, which enables researchers to identify relationships between dependent and independently variables [55, 56]. Furthermore, SEM makes correlation between theory assumptions and calculation experiments against empirical evidence. It has also been shown that SEM enables simple and independent estimation by a single study [57]. It is also possible to study a complex system which allows to explore casual relationships among latent variables. Specifically, this analysis searches for a recursive pattern.

B. Proposed LM Model

This section discusses the latent variables and the interactions between them are hypothesized. The TPS house comprises elements (constructs) such as stability and standardization, JIT, integration of people, and Jidoka. The study is generally about solving a recursive model. LM's success depends on employer engagement, empowerment, and team effort, all of which are HRM practices. People incorporation integrates a program designed to encourage workers to constantly enhance workplace processes in order to increase the company's productivity and performance. Employees are responsible for carrying out the work and implementing modifications caused by LM. They also control their own systems as they emerge in the method and solve problems. Fullerton et al. and Dal Pont et al. [32] showed that flexible staff working in teams makes a strong commitment to JIT and therefore JIT is affected by people's integration. Chandler and McEvoy and Yang [58] found that HRM has a strong and positive effect on TQM. The hypothesizes can be considered as follows:

H1: the dimension of people integration is related positively to JIT,

H2: people integration impacts Jidoka positively,

H3: people integration is strongly associated with stability and standardization.

Stability and standardization are designated as the condition of the system which is able to provide items consistently and uniformly with small variations, such as fluctuation of production, system malfunction, human failure and product varieties matching. Stability and standardization help in eliminating interrupted activities as orders are issued on time, equipment is run as scheduled and work standards are applied. The main objective of standardization is to establish standards in the methods and processes of work [59]. It is also easier to assess the source of the problem when the processes are standardized. When the processes are standardized, it's also easier to recognize and evaluate the source of the problem. The effectiveness of LM will decrease if stability is not implemented [60]. Stability and standardization also guarantee that processes are carried out in the correct manner to ensure quality products are produced each time. Hence, the proposed hypotheses are as following:

H4: Stability and standardization are correlated positively with JIT,

H5: Stability and standardization are correlated positively with Jidoka.

A study conducted by Flynn et al. [61] found that the JIT performance increased with the use of quality management practices. Kannan and Tan [62] have found a strong relationship between JIT and TQM practices. Other research studies have also investigated the effect of JIT and TQM on the performance of companies. Mann and Kehoe [63], Shah and Ward [64], Talib et al [65], Rahman et al. [43], Sadikoglu and Olcay [66] showed that when an organization invests in quality practices, higher financial returns and enhanced operational performance are achieved. Rahman et al [43] showed that JIT has a positive relationship to operating performance in small and medium-sized enterprises. So, the hypothesis is that:

H6: a positive relationship is existing between Jidoka and JIT,

H7: a positive relationship is existing between JIT and operational performance, H8: Jidoka positively impacts the operating performance.

Figure 3 shows the structural LM model that was developed to measure the effect of Lean tools on operational performance. Based on the literature survey, most of the studies emphasized on the relationship between specific practices and performance rather than considering the enhancement of the performance due to the implementation of lean procedures. Moreover, there is no measuring tool has been developed to appraise LM in Saudi Arabia.

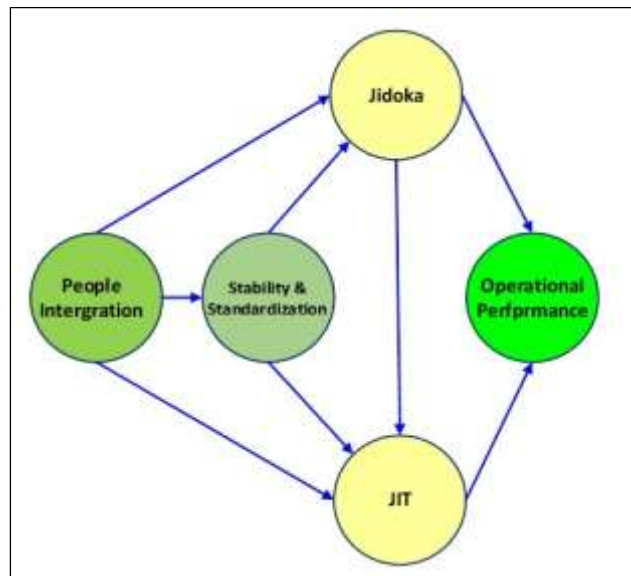


Figure 3. Structural model to lean measurement

III. RESEARCH METHODOLOGY

I. Measuring Tools

In order to measure the impact of LM constructs on the operational performance a questionnaire was developed for the model. The questionnaire was divided into three main parts: Section A contained company information. Section B concentrated with questions regarding the level of company adoption of LM constructs. Section C included questions relating to the company's operational performance. The questions with 7-point quantifiable measuring scale were applied by various authors such as Khanchanapong et al. [67], Dora et al. [68], Garza-Reyes et al. [69], and Wickremasinghe [70]. Shah R et al. [71] and Belekoukias et al. [72] evaluated the operational performance in terms of speed, flexibility and reliability items. For measuring operational performance, a 5-point scale was applied, with 1: representing a decline of more than 20 percent; 2: a decline of 1–20 percent; 3: It remained the same; 4: increased by 1–20% and 5: increased by over 20%. A pilot study was conducted to get ideas about the questionnaire from industry practitioners and academics. To ensure reliability and construct validity, some items had been discarded, modified, or added.

II. Data Collection

The current research targeted 120 firms to be evaluated (either public or private). These companies had fallen under the industrial and manufacturing companies of petrochemicals, steel, plastics, pharmaceutical, food, cement, electrical and electronics. Sixty questionnaires were hand-distributed while other companies have been contacted by emailing a Google form link. A total of 67 useful and comprehensive responses represented a response rate of almost 55.8%. The distribution of the responses obtained by the researchers is shown in Figure 4.

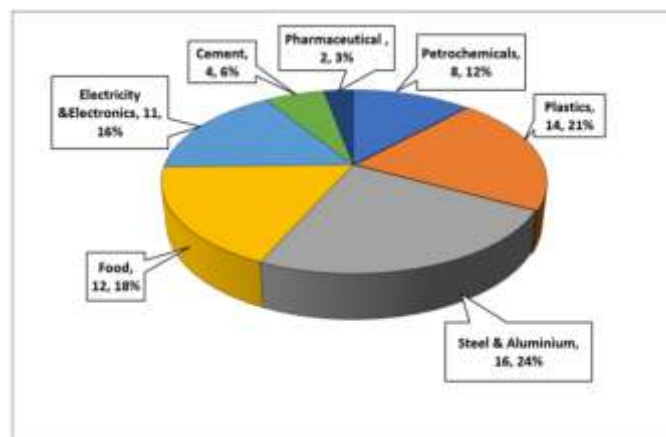


Figure 4. Distributions of the responses obtained from different industries

III. DATA ANALYSIS

The data analysis was carried out using the Statistical Package for Social Sciences (SPSS- v25) and the SmartPLS3. SPSS was used to analyse the exploratory factors, while the measurement and structural model were assessed using SmartPLS 3. Assessing the

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model includes appraising the relationship between LM constructs and their measurement items, while evaluating the structural model determines the correlation between the constructs.

IV. FINDINGS & DISCUSSION

A. Appraising the Measurement Model

To ensure the validity of the collected data, the sample was tested for reliability and validity. The coefficients such as alpha coefficient (Cronbach's alpha), rho_A, average variance extracted (AVE) were used in analyzing and appraising the model. The reliability of each variable was more than 0.7, and the reliability of the overall sample was 0.85, demonstrating that the questionnaire had good internal consistency. The adoption of measuring items from previously published articles ensured the questionnaire was highly reliable. Initially a total of 49 items were chosen to measure the five LM constructs. Exploratory factor analysis has been used to reduce the number of items for constructs and to evaluate validity, thus assuring a parsimonious description for the five latent factors (JIT, Jidoka, people integration, stability, and standardization and operational performance). After the preliminary review nineteen items were eventually chosen for the constructs. The Bartlett's test was significant with a $p < 0.001$. The analysis showed that the five-factor structure with a model variance of 60.672 %. The results of Cronbach's alpha were within the range of 0.661 - 0.876 for each construct. This can be considered as an acceptable to high level according to Gotz et al. [73], and Bevilacqua et al. [74]. To ensure construct validity, the average variance extracted (AVE) should be > 0.5 [75]. The obtained AVE values of the current study were > 0.6 , meaning that the construct is valid. The all obtained statistical parameters Cronbach's alpha, rho_A, composite reliability, and AVE are displayed in Figure 5. The Fornell-Larcker criterion is a dominant approach for assessing discriminant validity for SEM. Therefore, Fornell-Larcker criteria was applied to ensure the validity of interrelation constructs. The results in Table 1 revealed that the whole measuring items supporting discriminating validity. Moori et al. [76] and Jose Benitez et al. [77] reported that when the AVE values are greater than the correlation between the factors, discriminating validity is ensured.

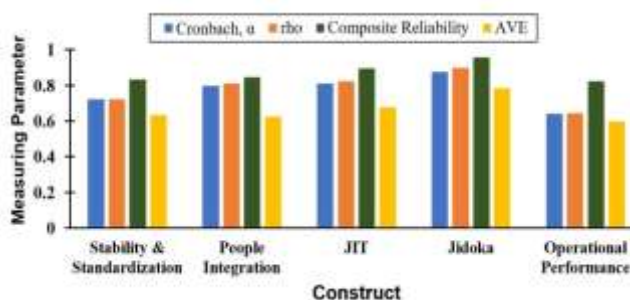


Figure 5. Construct validity and reliability

Table 1. Results of Fornell–Larcker Criterion

	JIT	Jidoka	Operational performance	People integration	Stability and standardization
JIT	0.767	---	---	---	---
Jidoka	0.672	0.845	---	---	---
Operational performance	0.389	0.371	0.762	---	---
People integration	0.511	0.565	0.272	0.782	---
Stability and standardization	0.564	0.612	0.331	0.501	0.800

B. Evaluating the Structural Model

The coefficient of determination R2 was determined as a statistical measure for assessing the developed structural model. In the analysis of human and social researches, if the R2 value is 0.26 it is considered significant [78]. The obtained R2 values of the current model ranged from 0.328 to 0.687 for the dependent variable. Therefore, the correlation is significant. The R2 values were 0.63, 0.67, 0.30, and 0.41 respectively for Jidoka, JIT, operational performance, and stability and standardization. This proved that People integration, JIT, and Jidoka had a good impact on performance of the operations. Structural Equation Modelling (SEM) is commonly used to appraise and analyse unobservable 'latent' constructs. SEM usually invokes a measurement model that describes latent variables by means of one or more observed variables, and a structural model that attributes relationships between latent variables [79]. The relationships between constructs of a structural equation model can be assessed with independent regression equations. SEM is justified in the social, education, and business sciences because of its ability to attribute

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relationships between latent variables from observable variables [80]. Figure 6 shows a schematics diagram of the structural connection between people integration, stability & standardization, JIT, Jidoka and operational performance. It can be noticed that people integration has a stronger relationship with stability and standardization than with Jidoka and JIT according to the structural coefficients which were 0.660, 0.318, and 0.168, respectively. Stability and standardization have been strongly related to Jidoka than to JIT. The structural coefficients were 0.562 and 0.221, respectively. A high coefficient of 0.518 can be observed between Jidoka and JIT constructs. Thus, a close interaction is approved between those two constructs.

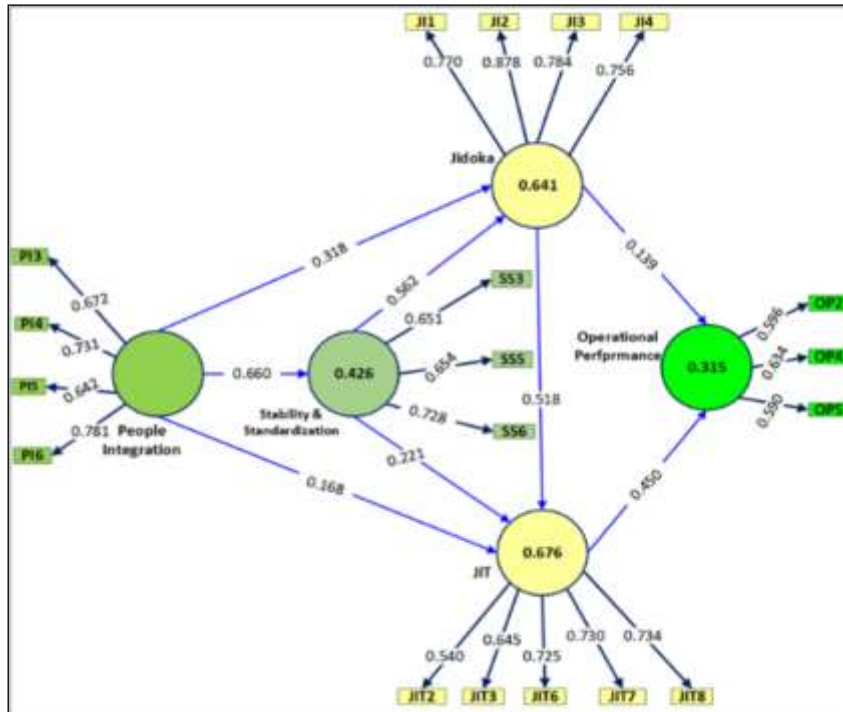


Figure 6. Schematics diagram of Structural Equation Modelling (SEM)

Overall results showed the most significant impact of people integration on operational performance (0.376), followed by JIT (0.361), stability and standardization (0.335), and Jidoka (0.224). The results accordingly confirm the findings of other authors (Dal Pont G, 2008; Furlan A, 2011; Belekoukias I, 2014; Wickramasinghe, 2017; Marodin GA, 2019). In Figure 7 through Figure 9, the standard deviation (SD), T-statistics, and the p values have been determined to be used for evaluating the hypothesis in terms of acceptance or rejection.

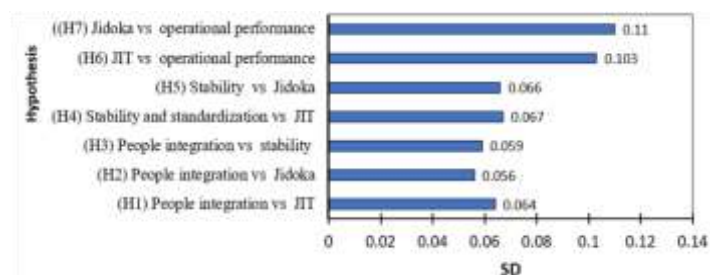


Figure 7. Standard deviation (SD) of all hypothesis

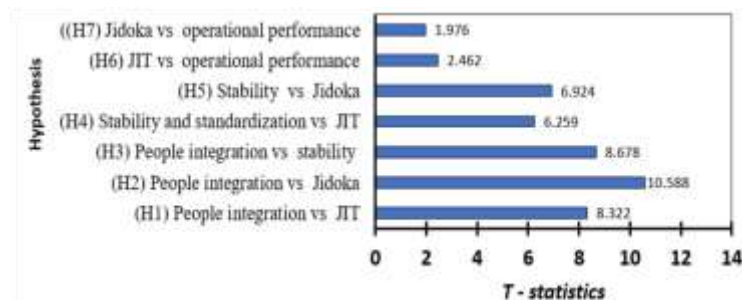


Figure 8. T-test of all hypothesis

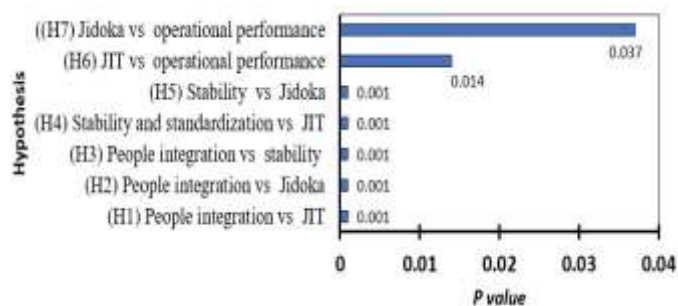


Figure 9. P value of all hypothesis

According to the obtained values shown in the graphs all the hypotheses have been supported. Therefore, the proposed model can be used to determine the effect of applying LM on the operation performance. Lean manufacturing (LM) is founded on the concept that any activity that fails to make value is waste or muda and should be either removed or reduced. Therefore, principally the goal of LM is to reduce or remove wastes. LM is more effective when manufacturers produce high volume and steady demand. The aim of the current study was to investigate the influence of implementing LM tools such as people integration, stability and standardization, JIT and Jidoka on business performance across companies across Saudi Arabia. The findings supported all the hypotheses that were established to show that operational performance may be enhanced by the LM techniques. Several studies around the world have shown that implementation of LM tools results in operational performance enhancements. Furthermore, the results of the current study are corresponding with many researchers such as Eswaramoorthi et al. [81], Nawanir et al. [82], Khanchanapong et al. [67], Osama M. Irfan [10], Abby Ghobadian et al. [8], and Sachin Kamble et al. [83] who have shown that the application of LM has provided positive results and competitive advantage for manufacturing organizations. The results showed the necessity to train the employees about the importance of Implementing LM since people are the backbone for successful implementation of any process or system. This proposes that managers should invest in training staff to be able to drive the LM implementation. People Integration had a good interaction with JIT and Jidoka suggesting that workers were working to increase the flow of materials and the quality of the manufactured products. Stability and standardization also had more significant effect on JIT than Jidoka. A reliable and consistent network improves manufacturing efficiency as the flow of materials through the production floor is less interrupted. Jidoka and JIT had positive operational performance relationships. That is because the operating performance is improved as high-quality materials and goods pass into the production system. The greatly influenced performance enhancement variables were speed, flexibility, and dependability. The operational performance path coefficients indicated that flexibility had the significant contributions to LM, followed by speed and reliability. The strongest point of LM implementation in Saudi Arabia is that employees have been motivated by the program making them dedicated and hard-working. This management approach has also helped numerous enterprises to keep improving their systems. It was noted that LM's weakness was that the project competes with other management programs initiated by organizations for resources. The opportunities were to make organizations more competitive because once they applied the stability and standardization practice, they were able to set and follow standards for their processes. The quality of the products, designs, flow and communication has improved. In some cases, implementing LM caused concern among workers over job losses through retrenchment, but the management convinced them that some would be reassigned to other areas.

V. CONCLUSIONS

Lean manufacturing techniques are highly positive in its findings, resulting in strong evidence that lean clearly has a beneficial contribution to improving environmental and operational performance of organization. The current study verified that applying LM tools results in enhancements in the variables of operational performance such as dependability, speed, and flexibility. The operation performance was influenced by the four elements of TPS house, where people integration was functioned as a prerequisite for other elements. Management of people is essential for ensuring that LM's supports (JIT and Jidoka) and foundations (stability and standardization) are attainable. Stability and standardization help to create an environment where LM can be applied [84]. When the variability in the Lean system is too high, it becomes difficult to get results when applying Lean. Therefore, the degree to which the various functional areas as well as system products are standardized contributes to the effective adoption of LM. JIT allows for the uninterrupted flow of items and materials through the network with a minimal inventory in operation. A key characteristic of a Lean system is the level and extent of uninterrupted material flow through a system. Jidoka helps in minimizing defects within the manufacturing system. This guarantees that quality is sustained at all phases of product design, production and manufacturing. That in effect improves the organization's operational performance.

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The results also demonstrated that LM can also succeed in improving the operational performance of industrial organizations in Saudi Arabia. The main limitations of this research were that more corporations could have been used to reassess the model, and the model might also be evaluated in other developing countries.

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CONFLICTING OF INTEREST

The author declares that he has no conflict of interest.

REFERENCES

- 1) F. S. H. S. & H. S. S. Iranmanesh M, "Drivers and outcomes of eco-design initiatives: A cross-country study of Malaysia and Australia," *Rev. Manag. Sci.*, 2018.
- 2) I. M. S. H. S. & A. M. H. Zailani S, "Applying the Theory of Consumption Values to Explain Drivers' Willingness to Pay for Biofuels," *Sustainability*, pp. 668 -676, 2019.
- 3) A. T. I. B. A. K. V. G.-R. J. A. & O. N. Ghobadian, "Examining legitimatisation of additive manufacturing in the interplay between innovation, lean manufacturing and sustainability. I," *International Journal of Production Economics*, 2020.
- 4) M. S. a. R. S. Jadhav JR, "Roadmap for lean implementation in Indian automotive component manufacturing industry: comparative study of UNIDO model and ISM model.," *J Ind Eng Int*, 2014.
- 5) A. G. & N. C. D. Sachin Kamble, "Industry 4.0 and lean manufacturing practices for sustainable organisational performance in Indian manufacturing companies," *International Journal of Production Research*, 2020.
- 6) M. A.-K. a. A. S. Nasr Al-Hinai, "An Ergonomic Student Chair Design and Engineering for Classroom Environment," *Mechanical Engineering and Robotice research*, vol. 7, no. 5, pp. 534-543, 2018.
- 7) C. M. a. O. Adetunji, "Lean manufacturing implementation in Zimbabwean industries: Impact on operational performance," *International Journal of Engineering Business Management*, 2019.
- 8) I. T. A. B. V. K. N. O. Abby Ghobadian, "Examining legitimatization of additive manufacturing in the interplay between innovation, lean manufacturing and sustainability," *International Journal of Production Economics*, 2020.
- 9) D. H. L. A. e. a. Al-Najem M, "Lean readiness level within Kuwaiti manufacturing industries," *Int J Lean Six Sigma*, 2013.
- 10) O. M. Irfan, "Role of Lean Manufacturing in Enhancing Operational Performance of Aluminum Industry,," *International Journal of Engineering & Technology IJET-IJENS*, 2019.
- 11) F. A. & V. A. Galeazzo A, "Lean and green in action: Interdependencies and performance of pollution prevention projects," *J. Clean. Prod*, 2014.
- 12) A. C. B. & A. O. M. Erdil N O, "Embedding sustainability in lean six sigma efforts," *J. Clean. Prod*, 2018.
- 13) I. M. S. M. W. M. & H. S. S. Esmailifar R, "Effects of low carbon waste practices on job satisfaction of site managers through job stress," *Rev. Manag. Sci.*, 2018.
- 14) J. F. B. V.-H. J. F. Christian Lieberoth-Leden, "Implementation, Self-Configuration and Coordination of Logistical Functions for Autonomous Logistics Modules in Flexible Automated Material Flow Systems," *International Journal of Mechanical Engineering and Robotics Research*, vol. 8, no. 4, pp. 498-505, 2019.
- 15) B. G. G, "Lean manufacturers transcendence to green manufacturing: Correlating the diffusion of lean and green manufacturing systems, Ph.D. Thesis, , 2006.," University of South Florida, Tampa, FL, USA, 2006.
- 16) S. Z. S. S. H. M. H. A. & K. K. Mohammad Iranmanesh, "Impact of Lean Manufacturing Practices on Firms' Sustainable Performance: Lean Culture as a Moderator," *Sustainability*, 2019.
- 17) D. K. & J. I. Losonci D, "Factors influencing employee perceptions in lean transformations," *Int. J. Prod. Econ.*, 2011.
- 18) B. C. & P. V. Singh Binod kumar, "Competitive advantage of lean manufacturing over traditional manufacturing,," in *proceedings of the International Conference on Industrial Engineering, SVNIT, Surat.*, 2011. [19] V. Gupta, "Lean Manufacturing: A Review,," *Int. J. Sci. Tech. & Manag.*, 2015.
- 19) T. Ohno, *Toyota production system: beyond large-scale production*. crc Press., 1988.
- 20) J. P. J. Womack, *The machine that changed the world*, Rawson Associates, New York, 1990.
- 21) T. Fujimoto, *The evolution of a manufacturing system at Toyota*. Oxford university press., 1999.
- 22) M. Holweg, "The genealogy of lean production," *J Oper Manage*, 2007.

Lean Manufacturing Structural Model for Improving Operational Performance of Diverse Industries

- 23) B. a. Heath, "Reconceptualizing the effects of lean on production costs with evidence from the F-22 program," *J. Oper. Manag.*, 2009.
- 24) D. B. M. & W. D. A. Nordin N, "A survey on lean manufacturing implementation in Malaysian automotive industry," *Int. J. Innov. Manag. Technol.*, 2010.
- 25) V. A. a. D. P. G. Furlan A, "Complementarity and lean manufacturing bundles: an empirical analysis.," *Int J Oper Prod Man* , 2011.
- 26) M. C. C. S. e. a. Muvunzi R, " Application of lean value stream mapping to reduce waste and improve productivity: a case of tile manufacturing company in Zimbabwe.," *Int J Appl Innovat Eng Manage (IIAEM)* , 2013.
- 27) R. C. & K. A. Alhuraish I, "Assessment of lean manufacturing and six sigma operation with decision making based on the analytic hierarchy process. IFAC-Papers on Line, 49(2016)," 2016.
- 28) Z. S. I. M. & H. S. S. Weng G S, "Mobile taxi booking application services continuance usage intention by users," *Transp. Res. D Transp. Environ.*, 2017.
- 29) R. & W. P. T. Shah, "Lean manufacturing: context, practice bundles, and performance.," *Journal of operations management*, 2003.
- 30) S. O. & Zimmer, "Application of Lean Manufacturing Principles to Construction," *Lean Const. J.*, 2005.
- 31) F. A. a. V. A. Dal Pont G, " Interrelationships among lean bundles and their effects on operational performance," *Oper Manage Res* , 2008.
- 32) F. A. T. G. e. a. Marodin GA, *Total Qual Manage Bus* , 2019.
- 33) M. C. a. F. C. Fullerton RR, "Fullerton RR, McWatters CS and Fawson C. An examination of the relationships between JIT and financial performance.," *J Oper Manag*, 2003.
- 34) M. D. Lieberman MB, "First-mover (dis)advantages: Retrospective and link with the resource-based view.," *Strategic Management Journal*, 1998.
- 35) S. S. S. R. Nakamura M, "Adoption of justin-time manufacturing methods at U.S.- and Japanese-owned plants: Some empirical evidence.," *IEEE Transactions On Engineering Management* , 1998.
- 36) M. C. Fullerton RR, " The production performance benefits from JIT implementation.," *Journal of Operations Management* , 2001.
- 37) K. S. a. Kaplinsky, "The use of a lean production index in explaining the transition to global competitiveness: the auto components sector in South Africa.," *Technovation*, 2004.
- 38) H. M. M. L. K. & M. T. Mapfaira, " Lean manufacturing adoption and implementation barriers in Botswana manufacturing companies.," 2014.
- 39) W. R. M. N. G. K. Davy JA, " A derivation of the underlying constructs of just-in-time management systems.," *The Academy of Management Journal* , 1992.
- 40) O. M. C. a. Adetunji, "Lean-impact-analysis-assessment-models-development-of-a-lean-measurementstructural-model.," *Int J Mech Aeros Indust Mech Manuf Eng*, 2018.
- 41) Giorgia Dal Pont & Andrea Furlan & Andrea Vinelli, "interrelationships among lean bundles and their effects on operational performance," *Oper Manag Res*, 2008.
- 42) L. T. a. S. A. Rahman S, " Impact of lean strategy on operational performance: a study of Thai manufacturing companies.," *J Manuf Technol Manag*, 2010.
- 43) A. J. a. S. H. M. Agus A, " Lean production supply chain management A as driver towards enhancing product quality and business performance.," *Int J Qual Reliabil Manag* , 2012.
- 44) A.-T. M. a. Jalham, "A structural equation model and a statistical investigation of lean-based quality and productivity improvement.," *J Intell Manuf*, 2013.
- 45) E. C. a. R. H. A. Hofer C, " The effect of lean production on financial performance: the mediating role of inventory leanness.," *Int J Prod Econ*, 2012.
- 46) D. J. a. Vinodh, "Structural equation modelling of lean manufacturing practices.," *Int J Prod Res*, 2012.
- 47) S. F. a. I. M., " Structural equation modeling of lean manufacturing practices in a developing country context.," *J Manuf Technol Manage*, 2018.
- 48) F. A. T. G. e. a. Marodin GA, "Lean production and operational performance in the Brazilian automotive supply cha," *Total Qual Manage Bus*, 2019.
- 49) L. J. a. Morgan, "The Toyota way in services: the case of lean product development.," *Acad Manage Perspect*, 2006.
- 50) G.-R. J. a. K. V. Belekoukias I, " The impact of lean methods and tools on the operational performance of manufacturing organisations.," *Int J Prod Res* , 2014.

Lean Manufacturing Structural Model for Improving Operational Performance of Diverse Industries

- 51) C. F. a. D. S. I. Bevilacqua M, "Relationships between Italian companies' operational characteristics and business growth in high and low lean performers.," *J Manuf Technol Manag*, 2017.
- 52) M. R. a. Austin, "Applications of structural equation modeling in psychological research.," *Annu Rev Psychol*, 2000.
- 53) W. Chin, "The partial least squares approach to structural equation modeling.," *Modern Method Bus Res*, 1998.
- 54) C. W. a. Newsted, "Structural equation modeling analysis with small samples using partial least squares.," *Stat Strateg Small Sample Res*, 1999.
- 55) S. R. a. Goldstein, "Use of structural equation modeling in operations management research: looking back and forward.," *J Oper Manag*, 2006.
- 56) V. S. a. Joy, "Structural equation modelling of lean manufacturing practices.," *Int J Prod Res*, 2012.
- 57) C. G. a. McEvoy, "Human resource management, TQM, and firm performance in small and mediumsize enterprises.," *Entrep Theory Pract*, 2000.
- 58) P. Marksberry, *The modern theory of the Toyota production system: a systems inquiry of the world's most emulated and profitable management system.*, CRC Press., 2012. [60] S. N. a. Williams, *Lean for dummies*, Hoboken: Wiley, 2011.
- 59) S. S. a. S. R. Flynn BB, " Relationship between JIT and TQM: practices and performance.," *Acadf Manage J*, 1995.
- 60) K. K. V. a. Tan, "Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance.," *Omega*, 2005.
- 61) M. R. a. Kehoe, "An evaluation of the effects of quality improvement activities on business performance.," *Int J Qualit Reliab Manage*, 1994.
- 62) S. R. a. Ward, "Lean manufacturing: context, practice bundles, and performance.," *J Oper Manag*, 2003.
- 63) R. Z. a. Q. M. Talib F, " The relationship between total quality management and quality performance in the service industry: a theoretical model.," *Int J Bus Manage Soc Sci (IJBMSS)*, 2010.
- 64) S. E. a. Olcay, "The effects of total quality management practices on performance and the reasons of and the barriers to TQM practices in Turkey.," *Adv Dec Sci*, 2014.
- 65) P. D. S. A. e. a. Khanchanapong T, " The unique and complementary effects of manufacturing technologies and lean practices on manufacturing operational performance.," *Int J Prod Econ*, 2014.
- 66) V. G. D. K. M. e. a. Dora M, " Application of lean practices in small and medium-sized food enterprises.," *Brit Food J*, 2014.
- 67) A. E. a. K. V. Garza-Reyes JA, " Measuring lean readiness through the understanding of quality practices in the Turkish automotive supplier's industry.," *Int J Product Perform Manage*, 2015.
- 68) W. G. a. Wickramasinghe, "Implementation of lean production practices and manufacturing performance: the role of lean duration. *J Manuf Technol Manage*," *J Manuf Technol Manage*, 2017.
- 69) S. R. a. Ward, "Lean manufacturing: context, practice bundles, and performance.," *J Oper Manag*, 2003.
- 70) G.-R. J. a. K. V. Belekoukias I, " The impact of lean methods and tools on the operational performance of manufacturing organisations.," *Int J Prod Res*, 2014.
- 71) L.-G. K. a. K. M. Go'tz O, " Evaluation of structural equation models using the partial least squares (PLS) approach. *Handbook of partial least squares.*," *Berlin: Springer*, 2010.
- 72) C. F. a. D. S. I. Bevilacqua M, " Lean practices implementation and their relationships with operational responsiveness and company performance: an Italian study.," *Int J Prod Res*, 2016.
- 73) N. K. Avkiran, "Rise of the partial least squares structural equation modeling: an application in banking. In *Partial Least Squares Structural Equation Modeling*," *Springer, Cham.*, 2018.
- 74) P. A. a. K. H. Moori RG, " Lean manufacturing and business performance in Brazilian firms.," *J Operat Suppl Chain Manage*, 2013.
- 75) J. H. A. C. a. F. S. Jose Benitez, "How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research," *Information & Management*, 2020.
- 76) G. R. Hancock, " Fortune Cookies, Measurement Error, and Experimental Design".," *Journal of Modern Applied Statistical Methods*, 2003.
- 77) R. Kline, *Principles and Practice of Structural Equation Modeling (Third ed.)*. Guilford., Guilford, 2011.
- 78) P. Tarka, "An overview of structural equation modeling: Its beginnings, historical development, usefulness and controversies in the social sciences".," *Quality & Quantity*, 2017.
- 79) K. G. P. P. e. a. Eswaramoorthi M, " A survey on lean practices in Indian machine tool industries.," *Int J Adv Manuf Technol*, 2010.
- 80) K. T. L. a. N. O. S. Nawanir G, " Impact of lean practices on operations performance and business performance.," *J Manuf Technol Manag*, 2013.

Lean Manufacturing Structural Model for Improving Operational Performance of Diverse Industries

- 81) A. G. & N. C. D. Sachin Kamble, " Industry 4.0 and lean manufacturing practices for sustainable organisational performance in Indian manufacturing companies," *International Journal of Production Research*, 2020.
- 82) Dennis, "Lean production simplified: a plain-language guide to the world's most powerful production system. .," *Boca Raton: CRC Press*, 2016.
- 83) "Examining legitimatisation of additive manufacturing in the interplay between innovation, lean manufacturing and sustainability".
- 84) "Examining legitimatisation of additive manufacturing in the interplay between innovation, lean manufacturing and sustainability," 2020.
- 85) S. R. a. W. PT., " Defining and developing measures of lean production.," *J Oper Manage*, 2007.
- 86) M. NK., " Review of marketing research.," *Bingley: Emerald Group,,* 2007.



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Investigating the Impact of Accounting Information System (AIS) on the Organizational Performance: Government and Non-government Banks of Bangladesh



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ABSTRACT: This study focuses on finding out the impact of the accounting information system (AIS) on the performance of government and non-government banks in Bangladesh. For this purpose data were collected from 23 government and non-government banks by providing a questionnaire to test the determined hypotheses and the total number of respondents in this study was 103. Regression analysis was conducted to find out the impact of AIS on the performance of banks by considering AIS as an independent variable and performance as a dependent variable by using Excel 2016. The findings of the study reveal that AIS has a significant impact on the performance of government and non-government banks in Bangladesh. However, the impact of AIS on the performance of government banks is higher than the impact of AIS on the performance of non-government banks in Bangladesh. Based on the extensive literature review and findings of the study it is evident and recommended that to get long-term success through the implementation of AIS banks should focus on improving their effectiveness and efficiency, and provide proper training facilities to the employees to enlarge their knowledge and boost their work process. The recommendatory measures are particularly more important for non-government banks because the extent of the impact of AIS on their performance is lower than that of government banks.

KEYWORDS: accounting information system (AIS), performance, government banks, non-government banks, regression.

INTRODUCTION

According to the American Accounting Association (AAA) accounting is considered as a process to identify, measure, and communicate economic information to permit informed judgments and decisions by the user of the information (Adam, 2021). For making a correct and rational decision under uncertainty, appropriate information is needed by management at the right time. For every firm, accounting plays an important role in making rational information correct and easier. Nowadays the business world is changing rapidly. As a result, organizations all over the world are depending on accounting information systems (AIS) for keeping day-to-day operational records and to manage the information for further disclosure to stakeholders. An accounting information system (AIS) can be defined as a system of collecting, storing, and processing financial and accounting data that are used to make decisions by different users. The accounting information system can be compared to a computer-based method for tracking accounting activity linked with the resources of information technology (*Accounting Information System - Wikipedia*, 2017). The AIS in every organization may not be identical, it may differ based on the nature and size of the business, the nature of transactions of the firm, the amount of data, and the demand for information by management and others. The functions of AIS include data collection, data maintenance, data management, data control, and information generation and these functions are interrelated (Das et al., 2008). At present, it is considered a challenge to successfully adapt the accounting systems that are used in developed countries (Shareia, 2020). However, Internal control is considered one of the major tools of AIS which helps to limit the financial risk of the business organizations. The manual processing of data is eliminated with the help of AIS. AIS can easily retrieve data from a centralized database and can present a meaningful summary to both internal and external users with complete accuracy. Nevertheless, the system can help in the timely reporting of financial information and helps users of the information to act quickly and effectively based on the result of the report. Now data are prepared to provide meaningful reports by the AIS system with only one click. But till now computerized AIS is not adopted by organizations in most undeveloped and developing countries. To become successful, for every organization accounting information system plays an important role. To support the functions and

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for making effective decisions, it provides management of all levels, past, present, and future information needed for decision making. Successful AIS helps organizations to achieve their goals and objectives while unsuccessful ones can be a major reason for the failure of the organizations. Lack of a proper documentation system, lack of proper training facility, and high turnover rate of organizations' staff are considered major challenges for the implementation of effective AIS (Akhter, 2022).

STUDY OBJECTIVES

The main objective of this study is to find out the impact of the accounting information system on the performance of government and non-government banks in Bangladesh. However, the study will also help to compare the degree of impact caused by AIS on the performance of government and non-government banks.

DATA SOURCE AND METHODOLOGY

For finding out the impact of the accounting information system on the performance of government and non-government banks of Bangladesh, primary data were collected from 103 respondents through the extensive distribution of a set of questionnaires to 23 government and non-government banks of Bangladesh. The research site of this study is the Sylhet division of Bangladesh. Microsoft Excel 2016 has also been used for analyzing collected data and for constructing all necessary tables.

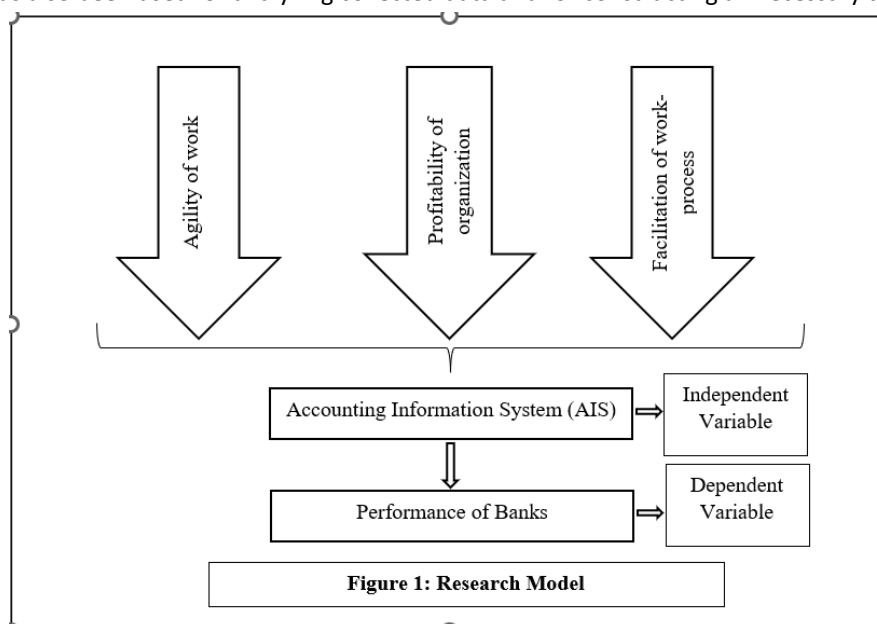


Figure 1. highlights the model of the study. Accounting information system (AIS) is taken as an independent variable and performance as a dependent variable. The independent and dependent variables were rated on a five-point Likert scale with responses ranging from strongly disagree to strongly agree.

HYPOTHESES OF THE STUDY

H o1: There is no significant impact of the accounting information system on the performance of government banks in Bangladesh.

H p1: There is a significant impact of the accounting information system on the performance of government banks in Bangladesh.

H o2: There is no significant impact of the accounting information system on the performance of non-government banks in Bangladesh.

H p2: There is a significant impact of the accounting information system on the performance of non-government banks in Bangladesh.

LITERATURE REVIEW

At first in 1966, the American Institute of Certified Public Accountants (AIPCA), considered accounting as an information system and to be more accurate, accounting as the practice of general theories of information in the area of effective economic activities and form a major segment of information that is presented quantitatively (AL-BAWAB, 2017). Several studies have been conducted to identify the impact of AIS on organizational performance. Banks and organizations use AIS because for the effective decision-making process and for adequate information which can be derived from AIS if the system runs efficiently (Akhter, 2022). Although, AIS has a positive significant effect on the performance management of banks and AIS should be considered as a critical fact of

Investigating the Impact of Accounting Information System (AIS) on the Organizational Performance: Government and Non-government Banks of Bangladesh

business objectives of the organization for the growth in performance management over a long period (Khalid et al., 2021). Khan et al., (2021) in their study suggests that the financial performance of banks is positively and significantly affected by strategic management accounting. However, private commercial banks are using AIS for dealing with data and for information management and it is recommended to improve their overall AIS system because most private commercial banks have unstructured AIS (Sarkar, 2020). By providing data and information about the interest rate and competitiveness, assisting employees with development and achieving profitability, and providing accurate information to detect threats AIS is helping and contributing to the banking business (Hakim, 2019). AIS helps to improve the competitive advantage of banks by providing timely access to information provided by the system which helps to differentiate one bank from another (Kanakriyah, 2017). According to Afroz (2016), in the banking sector of Bangladesh, monitoring and decision-making, core operational activities, detecting variation in change, matching regulatory compliance, loan disbursement, determining the cost of service, optimum utilization of resources and internal control are significantly affected by the application and uses of AIS, but the information is not handled properly. AIS is considered an important factor for the betterment of organizational performance by collecting, storing, and processing financial information and accounting information for evaluation and their impacts on the betterment of the decision-making process, accounting information quality, evaluation of performance, internal controls, and facilitating company's transactions (Soudani, 2012). For decision-making, combining accounting information with ERP will increase the relevance of accounting information and reduces uncertainty for decision-makers (Alzoubi, 2011). However, AIS improves the accounting functions of organizations and adds information value (Muhamad Sori, 2009). Finally, from the overall literature review, it is evident that except Akhter (2022) there is no such study has been conducted yet to find out the impact of the Accounting Information System (AIS) on the overall performance of the banks of Bangladesh. But this study did not focus separately on the government and non-government of Bangladesh.

DATA ANALYSIS

Hypothesis 1

H o1: There is no significant impact of the accounting information system on the performance of government banks in Bangladesh.

H p1: There is a significant impact of the accounting information system on the performance of government banks in Bangladesh.

[Dependent Variable: Performance of banks]

Table 1. Multiple Regression Government Banks of Bangladesh

Model 1	R	R Square	Adjusted R Square	Standard Error	ANOVA (Model Fitness)
	0.859	0.738	0.720	0.246	F Value: 42.18; P Value: 0.000*
	Variables	Regression Coefficient	T Value	P Value	
X1	Agility of work	0.510	2.289	0.027	
X2	Profitability of organization	0.648	2.888	0.006	
X3	Facilitation of work-process	0.398	1.955	0.057	

Source: Excel 2016

*Significant at 5% level

Table 1 shows the result of a multiple regression analysis of government banks in Bangladesh. Here, the R-square value is equal to 0.738. It means 73.8% of the variation in the performance of government banks in Bangladesh is explained by different independent variables, such as agility of work, profitability of organization, and facilitation of work-process, and the rest of the variation ($1-R^2$) is due to other variables not included in the analysis. ANOVA (Model of Fitness) illustrates the value of F is 42.18 and the value of P is 0.000. It highlights that all variables exactly fulfilled the criteria of the model of accuracy as $P < 0.05$. However, the value of the regression coefficient of the independent variable agility of work is 0.510, which means that one unit change in the agility of work results in 0.510 units change in performance. Besides, the regression coefficient of profitability of organization and facilitation of work-process is 0.648 and 0.398 respectively, which means one unit change in the profitability of organization and facilitation of work-process results in 0.648 and 0.398 unit change in the performance of government banks in Bangladesh. Each regression coefficient of the variables in the table is statistically significant at a confidence level of 95%. So, the null hypothesis

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is rejected, and it is clear that there is a significant impact of the accounting information system on the performance of the government banks in Bangladesh.

Hypothesis 2

H o2: There is no significant impact of the accounting information system on the performance of non-government banks in Bangladesh.

H p2: There is a significant impact of the accounting information system on the performance of non-government banks in Bangladesh.

[Dependent Variable: Performance]

Table 2. Multiple Regression Non-government Banks of Bangladesh

Model 2	R	R Square	Adjusted R Square	Standard Error	ANOVA (Model Fitness)
	0.461	0.212	0.165	0.288	F Value: 4.488; P Value: 0.007*
	Variables	Regression Coefficient	T Value	P Value	
X1	Agility of work	0.178	0.985	0.329	
X2	Profitability of organization	0.279	1.987	0.052	
X3	Facilitation of work-process	0.005	0.034	0.973	

Source: Excel 2016

*Significant at 5% level

Table 2 shows the result of multiple regression analysis of non-government banks in Bangladesh. Here, the R-square value is equal to 0.212. Which illustrates 21.2% of the variation in the performance of non-government banks in Bangladesh is explained by different independent variables, such as agility of work, profitability of organization, and facilitation of work-process, and the rest of the variation (1-R²) is due to other variables not included in the analysis. ANOVA (Model of Fitness) illustrates the value of F is 4.488 and the value of P is 0.007. It highlights that all variables exactly fulfilled the criteria of the model of accuracy as P<0.05. However, the value of the regression coefficient of the independent variable agility of work is 0.178, which means that one unit change in the agility of work results in 0.178 units change in performance. Besides, the regression coefficient of profitability of organization and facilitation of work-process is 0.279 and 0.005 respectively, which means one unit change in profitability of organization and facilitation of work-process results in 0.279 and 0.005 unit change in performance of non-government banks. Each regression coefficient of the variables in the table is statistically significant at a confidence level of 95%. So, the null hypothesis is rejected, and it is clear that there is a significant impact of the accounting information system on the performance of non-government banks in Bangladesh.

FINDINGS

The data analysis section reveals that there is a significant impact of the accounting information system on the performance of government and non-government banks in Bangladesh.

The findings are as follows:

Table 1. Summary of Findings

No.	Hypotheses	Results
H o1	There is no significant impact of the accounting information system on the performance of the government banks in Bangladesh.	Rejected
H o2	There is no significant impact of the accounting information system on the performance of non-government banks in Bangladesh.	Rejected

However, by comparing the regression analysis of government and non-government banks it is clear that the performance of government banks is influenced by AIS more than the non-government banks.

RECOMMENDATIONS

The followings are the recommendatory measures that should be taken into consideration to grasp the benefits of the accounting information system:

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- To improve efficiency and effectiveness, and to get long-term success for the banks' an AIS system is required to be implemented throughout the organizational context.
- The findings illustrate the fact that the degree of impact on the performance of non-government is less than the government banks. As so, the non-government banks of Bangladesh should focus on this fact by implementing proper AIS facilities across the organizational context.
- Furthermore, a proper training facility needs to be provided to the employees of the banks for enlarging their knowledge about AIS and to make them comfortable with adapting to the AIS system easily which is significantly important for non-government banks.

CONCLUSION

In the banking sector, information is considered a valuable asset. Accounting information system helps to track, record, analyze and present information to interested parties which helps to take decisions for both internal and external purpose. The impact of AIS on the performance of both government and non-government banks in Bangladesh is significant. However, the results are statistically relevant but this may not be in a real sense. Generalization of the findings of the study may become biased depending on the environment, culture, and working methods of different regions or countries. There is no doubt that AIS has a significant impact on the performance of every organization, but the frequency of using modern technologies and methods for accounting purposes is not updated enough in Bangladesh to cope with the global scenario. It is quite easier to conclude with the statement that by improving the agility of work, profitability of the organization, and facilitation of work-process, AIS impacts the performance of banks. But no matter what, banks should ensure a sound organizational structure to improve the knowledge and practical insights of their employees to improve the efficiency and effectiveness of the performance.

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REFERENCES

- 1) Adam. (2021, July 7). *American Accounting Association (AAA)*. Investopedia. <https://www.investopedia.com/terms/a/american-accounting-association-aaa.asp>
- 2) *Accounting information system - Wikipedia*. (2017, April 1). Accounting Information System – Wikipedia . https://en.wikipedia.org/wiki/Accounting_information_system
- 3) Das, Sumon & Das, Shilpi. (2008). Accounting Information System of the Financial Institutions in Bangladesh: An Evaluation.
- 4) Shareia, Bubaker. (2020). Accounting Information Systems in Developing Countries.
- 5) Akhter, Aziza. (2022, April 27). Impact of Accounting Information System on Organizational Performance: Private Commercial Banks of Bangladesh. *International Journal of Scientific and Research Publications (IJSRP)*. 12. 307. 10.29322/IJSRP.12.04.2022.p12443.
- 6) Hakim, M. A. (2019). Accounting Information Systems and Bank Services: A Study on Their Relationships. *Asian Accounting and Auditing Advancement*, 10(1), 23–32. Retrieved from <https://4ajournal.com/article/view/56>
- 7) AL-BAWAB. (2017, December). The Role of Accounting Information Systems (A.I.S.) in the Raising the Performance of the Financial Management in the Jordanian Private Hospitals. *International Review of Management and Business Research*, 6(4), 1299–1304. <https://doi.org/10.1016/j.accinf.2005.09.001>
- 8) Khalid, & Kot. (2021, August 31). IBIMA Publishing. *The Impact of Accounting Information Systems on Performance Management in the Banking Sector, 2021(2021)*. <https://doi.org/10.5171/2021.578902>
- 9) Sarker, Jaynob. (2020, December 30). Scenario of AIS Practices on Private Commercial Banks in Bangladesh: An Exploratory Study. *International Journal of Multidisciplinary Informative Research and Review*. Vol. 1, No. 4, 2020, pp. 155-161.
- 10) Kanakriyah, Raed. (2017). The Impact of Accounting Information Systems on the Banks Success: Evidence from Jordan. *Research Journal of Finance and Accounting*. 8. 1-14.
- 11) Alzoubi, A. (2011). The effectiveness of the accounting information system under the enterprise resources planning (ERP). *Research Journal of Finance and Accounting*, 2(11).
- 12) Afroz, Farjana. (2016). Application and Uses of Accounting Information System(AIS) in Banking Sector in Bangladesh. *Al-Barkaat Journal of Finance & Management*. 8. 45. 10.5958/2229-4503.2016.00014.X.

Investigating the Impact of Accounting Information System (AIS) on the Organizational Performance: Government and Non-government Banks of Bangladesh

- 13) Khan, Arsala & Ullah, Mahboob & Qazi, Umer & Saeed, Aliya & Alam, Muhammad. (2021). Strategic Management Accounting Practices and Financial Performance of Banking Sector in Pakistan. *Indian Journal of Economics and Business*. 20. 1705-1714.
- 14) Soudani, Siamak. (2012). The Usefulness of an Accounting Information System for Effective Organizational Performance. *International Journal of Economics and Finance*. 4. 10.5539/ijef.v4n5p136.
- 15) Muhamad Sori, Zulkarnain. (2009). Accounting Information Systems (AIS) and Knowledge Management: A Case Study.



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Using Webtoon Comic as Media to Improve Cultural Understanding of Advanced Indonesian as Foreign Language (IFL) Students



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ABSTRACT: In Indonesia as a Foreign Language (IFL) learning, it is necessary to have strategies and media that support the understanding of the Indonesian language and culture for foreign students from various cultural backgrounds. This study aims to develop and determine the effectiveness of culture-based webtoon comics as a learning media to increase advanced IFL students' cultural understanding. The research method used in this study is the ADDIE method (analysis, design, development, implementation, and evaluation) and used one group pre-test-post-test design on IFL academic class at Sebelas Maret University, Indonesia. This research used the Wilcoxon test with a 5% significance level and N-gain score to analyse the data. The validation results from IFL material and learning media experts indicate that "Belajar Budaya bersama Joko dan Fred" webtoon is a feasible product to use. The results showed the Wilcoxon Asymp test. Sig. (2-tailed) is $0.026 < 0.05$ and the N-gain score is 71.67%. From these results, it can be concluded that there was a significant difference between IFL students' average results before and after using this webtoon. The use of culture-based webtoons as a IFL learning medium is quite effective to improve the cultural understanding of advanced IFL students compared to the use of conventional texts with illustrations.

KEYWORDS: comic, webtoon effectiveness, learning media, cultural understanding, foreign language learning

I. INTRODUCTION

Understanding cultural aspects play an important role in Indonesian as Foreign Language (IFL) learning. This is because basically IFL is one from several effort to introduce Indonesian culture to foreign people through learning Indonesian. In this regard, the development of IFL program depends on the number of foreign enthusiasts who want to learn the Indonesian language and culture. Suyitno (2018) states that the percentage of the number of IFL students who are closely related to cultural learning objectives is quite high, for example learning Indonesian (14.98%) and being interested in Indonesian culture (10.49%), compared to practical reasons such as vacations (6.37%) and social programs (8%). Thus, cultural material plays a significant role in IFL.

Culture introduction in IFL is usually done with material in class and then continued with excursions or direct experience. When cultural aspects integrated into language learning material, students could build sociocultural competence (Kasztelanic, 2011). This competence permits students to speak Indonesian naturally like native Indonesian speakers (Kusmiatun, 2017: 87). It is important for IFL students to have sociocultural competence and cross-cultural understanding skills to communicate well and create a sense of tolerance which in turn creates a harmonious life. By understanding the cultural aspects, students could avoid culture shock when they live in Indonesia.

In synchronous learning, teachers can provide material and open discussions about the Indonesian language and culture. On the other hand, asynchronous learning depends on the motivation and desire of students to learn. In Covid-19 pandemic, almost all educational institutions switched to online distance learning. From that we could grasp that apt learning media is very important to support synchronous and asynchronous learning. Even though the pandemic has ended and learning is back to offline classes, it is necessary to use an effective media which also accessible for independent learning. This media should be able to deliver Indonesian language as well as culture material according to the target in class.

Comics as one of the media in IFL learning are highly recommended because of their position as a form of multimodal text (Watkins, 2018). Combining text in which there are elements of grammar, storyline, and Indonesian culture with illustrations as a visual form will further increase the interest and enthusiasm of IFL students. Zamzamy (2021) in his research emphasized that a multimodal text material that is integrated with local culture in online IFL learning is needed so that it can create sociocultural competence even though students are not living in Indonesia. Furthermore, in supporting the IFL digitalization, it is necessary to

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have a comic that is specifically in digital form that is easily accessible anywhere and anytime in an easy-to-understand and attractive format. Therefore, comics in the form of webtoon is the best choice as one of IFL learning medias.

Although there have been several developmental research in IFL learning, there has not been any research that specifically targets cultural knowledge through learning media in the form of webtoons for IFL students at intermediate level and above. Arumdyahsari et al. (2016: 829) asserts that advanced IFL students expect material that is formed attractively both in design and content: easy to understand, can be practiced directly, using illustrated images, and cultural learning integrated. This research was conducted to develop a webtoon as a culture based IFL learning media and its effectiveness in increasing the cultural understanding of advanced IFL students.

II. METHOD

This study used a research and development (R&D) method to produce certain products, and to test the effectiveness of these products (Sugiyono, 2015:407) in a quasi-one group pre-test-post-test experimental research design. Of the many R&D research models, this study uses the ADDIE model development method which consists of five stages, namely Analyze, Design, Development, Implementation, and Evaluation. The types of data used in this research are qualitative data and quantitative data. Qualitative data in this study were obtained based on observation, interviews, and needs analysis before and during the research. While the quantitative data in this study were obtained from the test scores of reading comprehension results in the form of multiple-choice tests. Sources of data in this study include informants consisting of media experts, material experts, teachers and advanced IFL students in the Sebelas Maret University, Indonesia. Product validity using expert judgment through materials and learning media experts to provide comments, criticisms, and suggestions to achieve product feasibility.

III. RESULT

Table 1. List of IFL Student Pre-test and Post-test Scores

Subject	Pre-test Score	Posttest Score
1	10	10
2	5	10
3	7	10
4	6	8
5	8	10
6	5	9
7	7	7

Descriptive statistical data of pre-test and post-test scores can be seen from the following table:

Table 2. Descriptive Table of Pre-test and Post-test Results

	Pre-test Score	Posttest Score
Mean	6,86	9,14
Median	7	10
Modus	7	10
Standard Deviation	1,77	1,22
Varians	3,14	1,48
Maximum Score	10	10
Minimum Score	5	7

From the descriptive analysis table above, there was difference in the results of each test carried out. It can be seen that there is an increase in the average value (mean) of the pre-test and post-test results of 2.28 points. The results of the post-test average score which were higher than the pre-test showed that the webtoon learning media given to advanced IFL students succeeded in giving an effect in the form of increasing their cultural understanding. From the data described above, it can be concluded that there are differences in the average reading comprehension results of IFL students before and after using webtoon as a culture based IFL learning medium.

The results of the normality test calculation of test data are as follows.

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Table 3. Normality Test Output

	Kolmogorov-Smirnov			
	Test	Statistic	df	Sig.
Culture Understanding Test Result	Pre-test	0,182	7	0,200
	Post-test	0,331	7	0,020

From the output table of the normality test of the research data above, it could be seen that the significance value of the pre-test data is 0.200. This value is greater than 0.05 thus the pre-test data is normally distributed. As for the post-test data, the significance value is only 0.020 and smaller than 0.05, so it is not normally distributed. To proceed to the t-test which is a parametric test, data must be normally distributed. Because the requirements for parametric statistical tests are not met, the data of this study will then be tested using the Wilcoxon test, a non-parametric statistical test.

Based on the calculation of the results of the pretest and posttest, it is known that Asymp. Sig. (2-tailed) has a value of 0.026 and a Z value of -2.232 based on negative ranks. Because the value of 0.026 is smaller (<) than 0.05, referring to the decision-making of the Wilcoxon test, it can be concluded that the hypothesis is accepted. This means that there is a difference between the reading comprehension results of IFL students between the pre-test and post-test.

Table 4. N-gain Score of Pretest and Posttest

	N	Minimum	Maximum	Mean	Std. Deviation
N-gain Score	6	0,00	1,00	0,7167	0,40208
N-gain Percent	6	0,00	100,00	71,6667	40,20779
Valid N (listwise)	6				

The effectiveness test obtained by comparing the pre-test and post-test scores is shown in the mean column of 0.7167 (rounded to 0.72). If it is included in the category of distribution of the N-gain score according to Meltzer (2002), then the score of 0.72 can be categorized as 'high'. For the percentage of N-gain scores, the data shown above shows a result of 71.6667% (rounded to 72%). Referring to the effectiveness category of the N-gain score according to Hake (1999), it can be concluded that the use of "Belajar Budaya bersama Joko dan Fred" (Learning the Culture with Joko and Fred) webtoon as a culture-based IFL learning medium is quite effective (compared to the use of conventional texts with illustrations) in increasing cultural understanding of advanced IFL students.

IV. DISCUSSION

The Effectiveness of the Webtoon as a Culture-Based IFL Learning Media

One of the appeal of the webtoon "Belajar Budaya bersama Joko dan Fred", which is a digital comic devoted to IFL learning with cultural content, is the use of images that are far more than plain text. The use of illustrations and images in the text, especially the dominant types such as graphic novels, comics, and webtoons according to Sabbah et al., (2013) is more attractive to visual learners. Beyond its scope as a learning medium in the classroom, this webtoon is expected to be able to assist students in consuming materials that are easily accessible via devices such as smartphones, tablets, or laptops. This is because, in language learning, media and materials are needed that are familiar and close to the daily lives of students (Faqih & Setyawan, 2021).



Picture 1. "Belajar Budaya bersama Joko dan Fred" Webtoon Logo

The finding of Jalilehvand (2012) states that pictures/illustrations are key variables in influencing students' reading comprehension in foreign language learning. This finding is in line with the results of this study which showed that IFL students performed better on the use of webtoon media than in conventional texts without illustrations or those with illustrations. The

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pedagogical implications that can be concluded are in line with Paivio's theory of Dual Coding (1991) because the dominance of more images in webtoons than in ordinary reading texts can facilitate IFL students' reading comprehension.

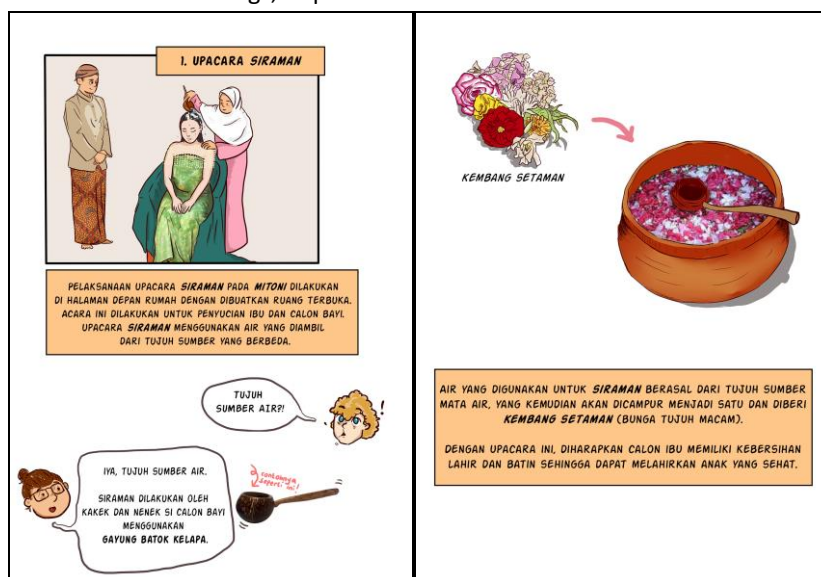
The illustrative storyline about Mitoni culture in the webtoon "Belajar Budaya bersama Joko dan Fred" has an important role in facilitating IFL students' understanding. This is because the shape is in the form of a sequence. Like verbal language in audio media, language structures in visual media are stored in memory in a sequence (Cohn, 2013: 62-63). If implemented in this study, individual understanding in learning using webtoons depends on interacting parts and panels and the sequence of storylines within and between episodes to create coherence. Cohn called this phenomenon a virtual language lexicon, that is, patterns stored in memory to understand images placed in sequence.

According to Oller's (1983) Episode Hypothesis theory, discourse texts in the form of organized serials (episodes) will be easier to remember than unserialized discourse texts. In conclusion, students will find it easier to learn the language and the information in it if the discourse given has a logical flow with interrelated sentences. Although this is closely related to context, Oller emphasizes the importance of logical structure and conclusions, which can be applied to webtoon comics.

From interviews conducted with several IFL students in the P3B UNS Academic class, the use of webtoon media was considered more attractive than conventional texts. They agree that the teacher occasionally uses this media on the sidelines of the routine use of conventional text media during reading comprehension sessions. By using a webtoon, students will be more motivated to improve reading comprehension literacy because of its ease of access and attractive features (such as audio features that can be included by webtoon writers). (Erya & Pustika, 2021; Indah & Wibowo, 2021).

Culture Understanding of Advanced IFL Students through a Culture-Based Webtoon

IFL as a language learning can foster empathy and cross-cultural and social understanding when pedagogical activities are based on adequate language and cultural materials. Global developments that continue to move require a dynamic cultural conception of language learning in the classroom (Kim, 2020). This dynamic cultural conception can be achieved through dialogue and critique discussion activities that can be carried out after students read the cultural material contained in the webtoon. In addition, there is a public comment feature provided by the webtoon, so that if learning is carried out asynchronously, students can still express their opinions and understandings, or provide criticism of comments from other readers.



Picture 2. Learning Mitoni Culture Through "Belajar Budaya bersama Joko dan Fred" Webtoon

The use of webtoons as culture-based IFL learning media can meet these requirements while preparing them for the demands of 21st-century learning. Flexible webtoon access can also improve the multimodal literacy of IFL students by exploring and discovering their knowledge. If teachers can use webtoon media optimally, then the class will be able to involve students and teachers in discussing cultural and social events that are intertwined in the characters and conflicts told (Issa, 2018; Yecies et al., 2020) which will then foster linguistic competence, communicative, and cultural.

Webtoon's Disadvantages as Culture-Based IFL Learning Media

Although there are many advantages in using webtoon media in the IFL class, the research conducted by Wulandari et al. (2019) states that there are shortcomings that need to be underlined. The use of webtoons according to Wulandari et al. turned out to

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be ineffective in learning foreign languages, especially in learning vocabulary. The webtoon used in this study is less able to provide the required reading text, less familiar and non-standard vocabulary, and the focus of the learner is more dominant on the story.

The results of this study can answer the shortcomings presented by Wulandari et al., First, by using a webtoon that is specifically formulated for IFL students at a certain level, namely the webtoon "Belajar Budaya bersama Joko dan Fred". The implication is that in the IFL class, vocabulary learning is possible along with the learner's knowledge of grammar. There is no doubt that there may be some words that students do not know when reading the webtoon. However, by using standard grammar and simpler sentence structures to accommodate students, IFL learning can run well.

The second drawback, namely the lack of a more dominant focus on the story, can be an advantage of using webtoon learning media. The integration of cultural content and language learning is part of the CLIL approach. The focus of the story given is in the form of cultural material so that the cultural competence of IFL students is honed along with their linguistic competence. The effectiveness of using webtoon learning media lies in how the teacher triggers discussion and provokes student opinions after reading comprehension activities.

Apart from what Wulandari et al.'s state, this research found two shortcomings of the webtoon "Belajar Budaya bersama Joko dan Fred" in the P3B UNS Academic IFL class as a learning media. These two weaknesses are quite fatal if the class is not properly conditioned: an impractical teaching then waste learning time. The results of interviews with several IFL students showed that although they were enthusiastic and appreciative of the use of webtoons as learning media and the cultural materials presented in it, students only wanted to use them occasionally. This is possible due to several factors such as unstable internet speed, students who are not used to using the Line Webtoon application, or devices that do not facilitate students. This opinion is supported by the findings of Yunus et al. (2012: 3462) in their research survey which proves that among as many as 30 language teachers, the majority think that the use of digital comics is considered less practical and time-consuming.

V. CONCLUSIONS

Based on research result and discussion, it could be concluded that (1) There is a difference between the reading comprehension results of IFL students between the pre-test and post-test by using webtoon as culture-based learning media, with 0,026 value of Asymp. Sig. (2-tailed) on Wilcoxon test; (2) the use of "Belajar Budaya bersama Joko dan Fred" (Learning the Culture with Joko and Fred) webtoon as a culture-based IFL learning medium is quite effective (compared to the use of conventional texts with illustrations) in increasing cultural understanding of advanced IFL students, which indicated by 72% N-gain score; and (3) impracticality and time-consuming as drawbacks factor in using webtoon as learning media could be overcome as long as the teacher can conditioning the class and make optimal use of learning media. For this reason, the researcher proposes that there should be further research on the effect of teacher readiness in using webtoon media in advanced IFL classes.

REFERENCES

- 1) Suyitno, I., Susanto, G, Kamal, M., & Fawzi, A. (2018). *Perilaku Belajar dan Pembelajaran BIPA: Acuan Dasar Pengembangan Literasi Komunikatif Pelajar BIPA*. Bandung: Refika Aditama.
- 2) Kasztelanic, A. O., (2011). "Do we need to teach culture and how much culture do we need?". In: Arabski, J., & Wojtaszek, A. (Eds.) *Aspects of culture in second language acquisition and foreign language learning* (pp. 35- 48). Berlin, Heidelberg: Springer.
- 3) Kusmiatun, A. (2017). "Integrasi Budaya dalam Materi Ajar BIPA". Artikel, Kumpulan Esai Pengajaran BIPA, Simposium Internasional Pengajaran BIPA 2017, Yogyakarta, 23 s.d.24 Agustus 2017, hal. 87-93.
- 4) Watkins, R. (2018). Comic Con(nection): Envisaging Comics as a Multimodal Ensemble that Teaches Core Visual Writing. *Journal of Teaching Writing*, 33(2).
- 5) Zamzamy, D. A. (2021). *Development of Multimodal Language Teaching Materials for Indonesian Language for Foreign Speakers (Bipa) During Pandemic Time*. 4, 21–31.
- 6) Arumdyahsari, S., Widodo, Susanto, G. (2016). Pengembangan Bahan Ajar Bahasa Indonesia Bagi Penutur Asing (BIPA) Tingkat Madya. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 1 (5). Pp. 828-834
- 7) Sugiyono. (2015). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- 8) Sabbah, M., Masood, M., & Iranmanesh, M. (2013). Effects of graphic novels on reading comprehension in Malaysian year 5 students. *Journal of Graphic Novels and Comics*, 4(1), 146–160. <https://doi.org/10.1080/21504857.2012.757246>

Using Webtoon Comic as Media to Improve Cultural Understanding of Advanced Indonesian as Foreign Language (IFL) Students

- 9) Faqih, F., & Setyawan, A. (2021). Pengembangan Media Pembelajaran Bahasa Indonesia Pada Tema Cerita Fantasi Berkearifan Lokal Madura Berbasis Android. *Indonesian Language Education and Literature*, 7(1), 71-87.
- 10) doi:<http://dx.doi.org/10.24235/ileal.v7i1.9032>
- 11) Jalilehvand, M. (2012). The effects of text length and picture on reading comprehension of iranian EFL students. *Asian Social Science*, 8(3), 329–337. <https://doi.org/10.5539/ass.v8n3p329>
- 12) Paivio, A. (1991). Dual-coding theory: Retrospect and current status. *Canadian Journal of Psychology*, 45, 255-287. <http://dx.doi.org/10.1037/h0084295>
- 13) Cohn, N. (2013). *The visual language of comics: Introduction to the structure and cognition of sequential images*. London: Bloomsbury.
- 14) Oller, J. W. 1983. Story writing principles and ESL teaching. *TESOL Quarterly*, 17 (1), 39-53.
- 15) Erya, W. I., & Pustika, R. (2021). Students' Perception Towards the Use of Webtoon to Improve Reading Comprehension Skill. *Journal of English Language Teaching and Learning (JELTL)*, 2(1), 51–56. <http://jim.teknokrat.ac.id/index.php/english-language-teaching/index>
- 16) Indah, D. O., & Wibowo, H. (2021). An Analysis of Reading Literacy for College Students Through Webtoon as Interactive Learning. *Lingua: Jurnal Pendidikan Bahasa*, 17(1). <https://doi.org/10.34005/lingua.v17i1.1367>
- 17) Kim, D. (2020). Learning Language, Learning Culture: Teaching Language to the Whole Student. *ECNU Review of Education*, 3(3), 519–541. <https://doi.org/10.1177/2096531120936693>
- 18) Issa, S. (2018). Comics in the English classroom: a guide to teaching comics across English studies. *Journal of Graphic Novels and Comics*, 9(4), 310–328. <https://doi.org/10.1080/21504857.2017.1355822>
- 19) Yecies, B., Yang, J. J., & Lu, Y. (2020). Korean webtoons and collective innovation: expanding Europe's creative industries through competitive localization. *Innovation: The European Journal of Social Science Research*, 33(4), 459–473. <https://doi.org/10.1080/13511610.2020.1828839>
- 20) Wulandari, R. A., Lestari, R. E., & Utami, S. L. (2019). The Effectiveness of Webtoon for EFL Student in Mastering Vocabulary. *CELL- Conference of English Language and Literature*. <https://semnas.untidar.ac.id/wp-content/uploads/2019/07/Rizqi-Ayu-Wulandari-Rodhiana-Eka-Lestari-Siti-Laras-Utami-The-Effectiveness-of-Webtoon-for-Student-in-Mastering-Vocabulary.pdf>
- 21) Yunus, M., Salehi, H., & Embi, M. (2012). Effects of Using Digital Comics to Improve ESL Writing. *Research Journal of Applied Sciences, Engineering and Technology*, 4 (18), 3462-3469. ISSN : 2040-7467.



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Effectiveness of Coconut Charcoal Shell Activated Carbon Filtration to Lower Fe in Cisterns Water: A Case Study in Arsopura, Keerom Regency, Papua



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ABSTRACT: Clean water consumed daily should not contain excessive Fe (iron) because it can cause health problems. The Fe can be reduced by filtering using activated carbon such as those found in coconut shells. For this reason, this study will analyze the effectiveness of iron filtration in excavated well water in Arso Pura, Keerom Regency, Papua Indonesia. The method used is an experiment with Randomized Complete Block Design (RCBD). Purposive sampling was carried out on community dug well water in Arso Pura, Keerom Regency, Papua by measuring Fe levels before and after using coconut shell activated carbon and the use of miner areas of 2 Inches, 3 Inches and 4 Inches. The results of the Anova test, namely a p-value of $0.00 < 0.05$, indicate that filtration with coconut shell charcoal and the addition of a cross-sectional area of the cross-sectional area have a significant effect or significantly different treatment on Fe (Mg / l). The result was with a cross-sectional area of 2 inches H with a decrease of 47.62%; 3 Inch to 59.05%, and 4 Inch to 63.81%. The results of the screening have not been able to meet the requirements for Fe levels in potable water. For this reason, a larger miner expansion mechanism and/or a different filtration approach is needed that must be carried out on the dug well water in Arsopuro to make it drinkable.

KEYWORDS: Drinking water, Fe grade, Coconut Shell Charcoal

BACKGROUND

Water is an important valuable resource for all forms of life. It is even regarded as the blood of the earth. While there is plenty of water to meet the demand of a projected population of around 9 billion, there is significant time and space variation in the global distribution of this valuable resource. As a result, there are water-rich and water-poor countries facing water pressure and water scarcity, which can lead to water-related conflicts and even 'water wars' in extreme situations. The World Health Organization (WHO) has identified unsafe drinking water as the world's leading killer (Jayawardena, 2022; 2023). The preciousness of water as described by Jayawardena is also due to the fact that the human body consists of more than 60% water in adults (Agustina, 2022).

The source of water used for human life is divided into two, namely natural sources and artificial sources. Natural sources include surface water and groundwater. Meanwhile, other antra made well water, drills and water that go through a purification process (Hartono, 2004). Furthermore, Hartono (2004) well water is surface water that is dug less than 15 meters, and generally does not meet the quality requirements both physically, biologically and chemically so that it cannot be consumed directly. On the basis that well water comes from various kinds of water that cannot be separated from human activities, often the water is polluted (Novaliani, 2022); can be iron (Fe) Manganese (Mn) and so on (Slamet, 2004, Novaliani, 2022). The contamination shows changes in color, smell and taste (Slamet, 2004) and can cause health problems (Slamet, 2004; Novaliani, 2022).

Besides harming the mineral Fe which is also needed in small quantities for the human body. Excess Fe for health can result in vascular disease including being a contributor to heart attack and buildup in the liver organs can result in liver cancer (Wardhana, 2004). for the dangers posed by substances in the water, the Government through the Minister of Health issued Ministerial Regulation No. 492 of 2010 which regulates the requirements and supervision of water quality by setting clean water quality standards. The standard for Fe is 0.3 mg/l and if it exceeds it it must require processing before being used for daily use.

Studies have revealed that the Fe content of water in Indonesia is excessive from the threshold (Mulyono, Wiwiek & Kriswandana, 2020; Hartono & Pratiwi, 2022; Sari, 2022), in Lampung (Sari, 2022); in Kendari (Hartono & Pratiwi); and including in Papua (Mulyono, Wiwiek & Kriswandana, 2020). Mulyono, Wiwiek & Kriswandana found Fe in the water of the Jayapura City Regional Drinking Water Company (PDAM) while Hartono & Pratiwi (2022); Sari (2022) in well water.

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Researchers identified several techniques and ways of filtering water including (zeolite; corn cobs, sand and active wine (Efendi, 2003); for iron itself, including using corn cob charcoal (Simbolon, 2011); sago stem fiber (Hartono & Pratiwi, 2022); Zeolite and Ferrolite (Mulyono, Wiwiek & Kriswandana, 2020); and coconut shell charcoal (Idayani Sangadji et al (2017).

Idayani Sangadji et al (2017) showed coconut shell charcoal with a thickness of 25 cm, on average it can reduce Fe levels by 40%. Meanwhile, at the thickness of coconut shell charcoal 30 cm, it decreases by 60%. Meanwhile, Zainul Ikhwan (2012) quoted by Subamia, Wahyuni & Widiasih (2017) revealed a pre-experiment where there were 5 sieve treatments, namely with a thickness of 3 Cm, 6 Cm, 9 Cm, 12 Cm, and 15 Cm. Data were analyzed using the Friedman test with alpha 0.05. Based on the results, it is known that the effectiveness of utilizing the size of coconut shell charcoal as a filter medium against reducing iron content in pond water is with a thickness of 6 cm, and manganese with 9 cm.

Based on the problems mentioned above, this study focuses on filtering iron with coconut shell charcoal media in well water in Arso Puro, Keerom Regency, Papua Province. The reason for choosing coconut shell charcoal is that coconut shells are generally found in almost all of Indonesia, including at research sites.

METHOD

This study using the Randomized Complete Block Design (RCBD) method or a randomized group design is an experiment where the factors tried are more than one factor and uses RAK as an experimental design. This design is chosen if the experiments used are not uniform, so they need grouping. The sample of this study is the Well Water dug by the People of Arso Pura Village. Sampling was carried out by purposive sampling at one dug well in Kampung Arso Pura, Keerom Regency, then an examination of samples was carried out before and after filtration with activated carbon from Batok Kelapa.

1. Implementation

In its implementation, the author divides into two activities: the implementation of treatment and examination of samples before and after filtration with activated carbon Coconut Shells in the laboratory.

2. Tools Anf Material

Table 1. Tools and material

Alat	Bahan
One hacksaw	PVC pipe 2-inch length 60 cm
One drill with ½ inch eye	PVC pipe ½ inch length 160 cm
One cutter knife	1 sheet of fine sandpaper number 5000
Stopwatch	2 pcs stop faucet size ½ inch
Measuring cups	4 pcs of 2-inch thread Dop.
stationery	7,5 cm thick foam to taste
papers	4 pcs ½ inch PVC Dop.
	2 pcs PVC Glue.
	Coconut charcoal unknown

3. Made the Filtering Tools

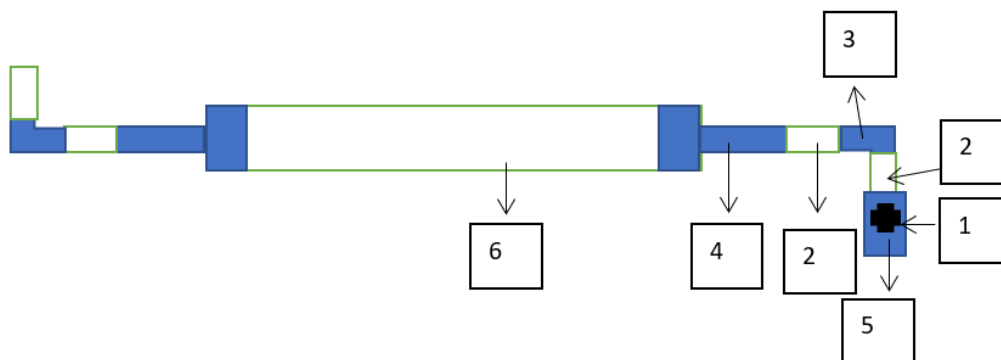


Figure 1. Filtering Tools

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\Description: 1. Stop faucet 1/2 inch; 2.PVC pipe 1/2 inch; 3. Elbow PVC 1/2 inch; 4. PVC straight pretentious 1/2 inch; 5.2 inch PVC hubcap; 6. PVC pipe 2 inch

The steps of making a sieve are as follows:

- 1) Cut a PVC pipe 30 cm long by 2 pieces with a hacksaw.
- 2) Hole 4 pieces of 2-inch PVC Dop symmetrically with a drill bit size of 1/2 inch
- 3) Cut 1/2 inch pipes as many as 8 pieces with a size of 20 cm each 1/2 inch
- 4) PVC dop mounted with 1/2 inch PVC straight Supported by 1/2 inch pipe on a 2 inch
- 5) PVC pipe hubcap that has been perforated and then glued Installed 1/2 inch PVC elbow on PVC pipe 1/2 that has been installed hubcap.
- 6) Then install another 1/2 inch PVC elbow with a 1/2 inch PVC pipe.
- 7) A faucet stop is installed at one end of the pipe that is 1/2 inch in size.
- 8) Cut foam/round sponge into 4 pieces more than 2 inches in diameter. Cut more so that it can be used as a buffer from coconut shell charcoal at the time of continuous filtration.
- 9) Insert foam/sponge at one end of a 2-inch PVC pipe.
- 10) Install the hubcap on the foamed pipe/sponge.
- 11) Entering the material, namely the coconut shell arasnq that has been pureed into the msing of each 2-inch PVC pipe.
- 12) Each foam/sponge is installed on a pipe that has been inserted in coconut shell charcoal. Each hubcap is placed on a 2-inch PVC pipe that has been filled with coconut shell charcoal. All joints are glued PVC pipes.

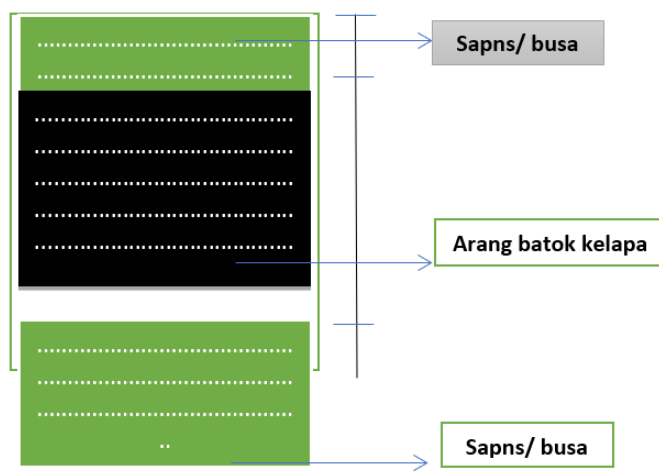


Figure 2. Filtration on Pipe

4. Coconut Charcoal activated carbon manufacturing procedure

- a. Buy coconut shells at the coconut seller's place or in the market
- b. Dry the coconut shells until they are completely dry so as to make the burning process easier
- c. Burn the coconut shells until they become charcoal but do not turn to ashes
- d. Mash until smooth coconut shells have become charcoal.
- e. Sift or strain coconut shells with a size of 18-20 mesh
- f. Put the sifted coconut shell charcoal powder into a colander.

5. Steps for assessment/measurement of Fe levels in cross-sectional area treatment

Table 2. Treatment Steps 1-3

Treatment 1: 2 inch	Treatment 2: 3 inch	Treatment 3: 4 inch
Turn on the pump. Flow the ketandon water to the charging limit. All water faucets (1,2and, 3) are off. Open faucets 2 and 3.	Treatment 2 begins with treatment 1 at point 10. Faucets 1 are closed, and faucets 2 and 3 are open. Then let stand for 10 minutes.	treatment 3 it begins with offender 2 on point 9. Faucets 1 are closed, and faucets 2 and 3 are open. Let stand for 12 minutes.

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<p>Prepare measuring cups 500 ml 2 pieces.</p> <p>Open faucet 1.</p> <p>Accommodate water from faucets 2 and 3 into a 500 ml measuring cup of 100 ml liters.</p> <p>Close faucet 1.</p> <p>Check the sample water collected on a 500 ml glass.</p> <p>Repeat 3 times.</p>	<p>Prepare measuring cups 500 ml 2 pieces.</p> <p>After 10 minutes open the faucet 1.</p> <p>Accommodate the water that comes out of faucets 2 and 3 into a 500 ml measuring cup.</p> <p>A total of 100 ml liters. Close faucet 1.</p> <p>Check the sample water accommodated on a measuring cup of 500 ml liters.</p> <p>Repeat 3 times</p>	<p>Prepare measuring cups 500 ml liters of 2 pieces.</p> <p>After 12 minutes, open faucet 1.</p> <p>Collect the water that comes out of faucets 2 and 3 into a measuring glass of 500 ml liters as much as 100 ml liters.</p> <p>Close faucet 1.</p> <p>Check the sample water held on a measuring cup of 500 ml liters.</p> <p>Repeat 3 times</p>
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RESULT

1. General Overview

Measurement of the effectiveness of coconut shell charcoal to reduce the Fe Iron content in well water is carried out with and without treatment (coconut shell charcoal). The results obtained are shown in table 3 and figure 3 below:

Table 3: Fe Content Analysis Results with and without using Coconut Shell Charcoal Filter Media

	Repetition			Sum (Mg/l)	Average (Mg/l)	Decline	
	1	2	3			(Mg/l)	%
No Treatment	1.05	1.00	1.10	3.15	1.05	-	
Treatment							
2 inch	0.55	0.50	0.60	1.65	0.55	0.5	47,62
3 inch	0.40	0.45	0.45	1.30	0.43	0.62	59,05
4 inch	0.35	0.40	0.40	1.15	0.38	0.67	63,81

Source: Data Primer

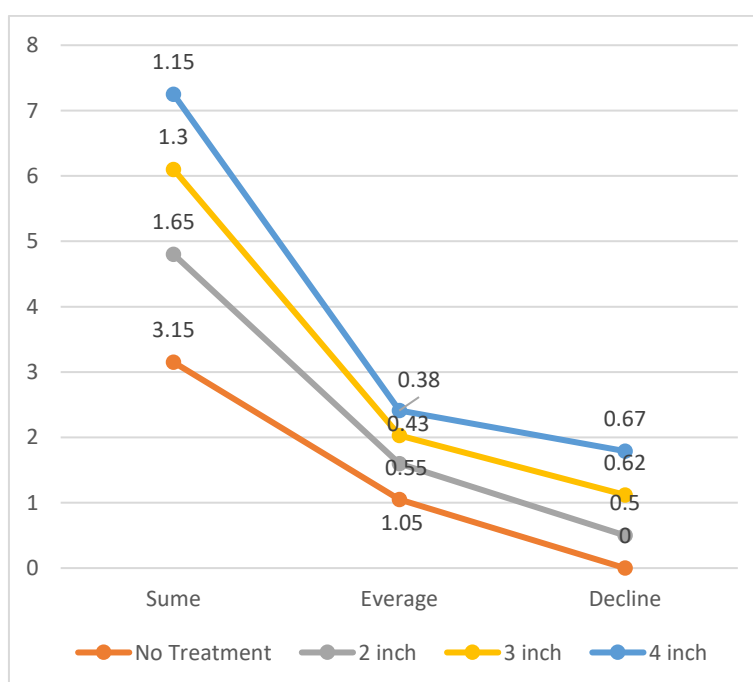


Figure 3: Decline Fe Level with coconut charcoal media filtration

Source: Data Primer

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THE table and figure above show that Fe levels at no treatment showed any decrease in Fe levels from three repetitions. Meanwhile, in good treatment with a cross-sectional area of 2, 3 and 4 inches, there was a decrease, namely successively, 0.55 mg / l (47.62%); 0.62 mg/l (59.05%) and 0.67 mg/l (63.81%).

2. Anova one Way Analyze

The following are the results of the analysis of the iron content of Fepada well water using Anova One Way:

Table 4. Results of one-way Anova analysis on Fe Levels Using Well Water Coconut Shell Charcoal Media

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.291	3	.430	23.206	.000
Within Groups	.148	8	.019		
Total	1.439	11			

Source: Data Primer

The table above is the result of Anova's analysis The effect of cross-sectional broad treatment (0, 2 Inch, 3 Inch and 4 Inch) on Fe (Mg/l). In the results of the Anova test above, it can be seen that the signification value is smaller than 0.05 ($P < 0.05$) which is $0.00 < 0.05$ so that H_0 is rejected with the conclusion that the Cross-sectional Area Treatment has a significant influence or different treatment of Fe (Mg / l).

Because of the significant treatment, further tests were carried out which in this case used the Different test with the following results:

Table 5. HSD Turkey Analise level decrease of Fe with coconut charcoal shell

Container area	N	Subset for alpha = 0.05	
		Treatment	No treatment
4 Inch	3	.3833	
3 Inch	3	.4333	
2 Inch	3	.5500	
0	3		1.2000
Sig.		.481	1.000

Source: Data Primer

The table above is the result of the real difference test (Tukey) broad cross-sectional treatment of Fe (Mg/l) parameters. If the treatment is located in the same subset it means that the treatment is not significantly different.

3. Water discharge produced by filtration

The following is the water discharge produced by each filter with a difference in the cross-sectional area:

Table 6. Water Discharge produced by filtration of well water using coconut shell charcoal media

Container Area	Water discharger ml/d
2 inch	0,0083
3 inch	0,015
4 inch	0.025

Source: Data Primer

The table above shows that the water discharge with a cross-sectional area of 2 inches is 0.0083 ml/d, the cross-sectional area of 3 inches is 0.015 ml/d and the cross-sectional area of 4 inches is 0.025 ml/d.

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4. Comparison Fe levels after filtration with coconut charcoal with quality standard health water of Indonesia Minister of health

Table 7. Comparison of well water filtration results using coconut shell charcoal media with clean water standards of the Indonesian Ministry of Health

Treatment	Result (mg/l)	Quality standard of Fe (mg/l)	Information
2 inch	0,5	0.3	Ineligible
3 inch	0.43		Ineligible
4 inch	0.38		Ineligible

Source: Data Primer

The table above shows that all well water filtration treatments with coconut shell charcoal media do not meet the requirements for clean water in Arso Puro, Keerom Regency in 2020

DISCUSSION

The results of research conducted to reduce the iron content of Fepada well water in Arso Puro using activated carbon medium coconut shell charcoal with a difference in cross-sectional area showed that there was a significant decrease, this can be seen in table 4, in the anova test results above it can be seen that the signification value is smaller than 0.05 ($P < 0.05$) which is $0.00 < 0.05$ so that H_0 is rejected with the conclusion The cross-sectional Area screening treatment exerts a significant influence or significantly different treatment on Fe (Mg/l). Activated carbon or activated charcoal is a porous solid containing 85-95% carbon, produced from carbon-containing materials by heating at high temperatures. Activated charcoal can be made from all carbon-containing materials, both organic and inorganic as long as the material has a porous structure (Sudrajat and Salim, 1994). Activated charcoal can be made from ordinary charcoal derived from plants or mining goods. The material of such materials is various types of wood, sawdust, sekampadi, danbatubara (Pari, 1995).

Activated carbon is most often used as an adsorbent (adsorbent) material. Adsorption is determined by the surface area of the particles and this ability can be higher if activated charcoal or activated carbon materials using chemicals or by heating at high temperatures.

Adsorption is the process of collecting soluble substansiter in solution by the surface of an adsorbent object in the manater into a physical chemical bond between the substance and its adsorbent (Sembiring, 2003). Adsorption occurs on the surface due to the forces of atoms and molecules on that surface. Adsorbing substances are called adsorbents, while adsorbent substances are called adsorbates. Adsorbents can be both solid substances and water substances. Solid adsorbents include silica gel, alumina, platinumhalus, cellulose, and activated charcoal. Adsorbate can be solid, liquid and gaseous substances. Adsorbent is a highly porous material. The location of the adsorption process occurs on the walls of the pores or certain locations in the adsorbent particles. Since those pores are usually very small, the area of the inner surface becomes several orders larger than that of the outer surface. Separation occurs because of differences in molecular weight or because differences in polarity cause some molecules to adhere to that surface more tightly than other molecules (McCabe in Setiati, 2004).

The level of Fe Iron contained in well water in Arso 4 has decreased because it is filtered using a filter with activated carbon media. Activated carbon has the ability to adsorb organic substances contained in the water, this we can see in table 1. In this study, activated carbon filters with a cross-sectional area of 2 inches dapart reduced the level of Fe iron in water by 47.62%, sieves with a cross-sectional area of 3 inches could decrease by 59.05% and sieves with a cross-sectional area of 4 icnh could reduce 63.81%. This indicates that the ability of activated carbon to adsorb solutes in well water so that there is a decrease in Fe iron content.

Sieve using the difference in cross-sectional area, namely the cross-sectional area of 2 inches, 3 inches and 4 inches to reduce iron levels Fetak there is a noticeable difference. This can be seen in table 5 of this study. In this case, there are several factors that affect the absorbency of adsorption, namely:

1. Adsorben Characteristic

Activated charcoal which is an adsorbent is a porous solid, which consists mainly of free carbon elements and each of them is covalently related. Thus, the surface of activated charcoal is non-polar. In addition to composition and polarity, pore structure is also an important factor to pay attention to. The structure of the pore is related to the surface area, the smaller the pores of

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activated charcoal resulting in the larger the area. Thus the speed of adsorbs increases. To increase the speed of adsorption, it is recommended to use mashed activated charcoal. The amount or dose of activated charcoal used should also be observed.

2. Absorption Characteristic

Many compounds can be adsorbed by activated charcoal, but their ability to adsorb is different for each of them. Adsorption will increase in size according to the increase in the size of the absorption molecules of the same structure, such as homologous series. Adsorption is also influenced by functional groups, functional group positions, double bonds, chain structure of absorption compounds.

3. Temperature

In the use of activated charcoal, it is recommended to observe the temperature during the process. Factors affecting the temperature of the adsorbs process are the viscosity and thermal stability of the absorption compound. If heating does not affect the properties of the absorption compound, such as discoloration or decomposition, then the treatment is carried out at its boiling point. For volatile compounds, adsorbs are performed at room temperature or whenever possible at lower temperatures.

4. pH

For organic acids, adsorbs will increase when the pH is lowered, that is, by the addition of mineral acids. This is due to the ability of mineral acids to reduce the ionization of these organic acids. Conversely, if the pH of organic acids is raised, namely by adding alkali, the adsorbs will decrease as a result of the formation of salts.

5. Contact Time

When activated charcoal is added in a liquid, it takes time to reach equilibrium. Stirring also affects the tangent time. Stirring is intended to give activated charcoal particles the opportunity to intersect with the absorption compound. For solutions that have high viscosity, it takes a longer tangent time (Sembiring, 2003). The longer the contact time can allow the process of diffusion and attachment of direct dsorbatber molecules better. The concentration of organic and metallic substances in the water will decrease when there is enough contact. Contact time is usually around 10-15 minutes.

The volume of activated carbon or the cross-sectional area used in this study did not significantly affect the decrease in iron contained in water because the volume of activated carbon or the cross-sectional area is not a factor that affects the effectiveness of activated carbon to adsorb solutes. In this study, researchers found that the cross-sectional area affects the discharge of the water produced. In this study, the activated carbon filter of coconut shells could not reduce Fe iron levels up to the standard of the Indonesian Ministry of Health No.492 / MENKES / PER / IV / 2010 which was 0.3 mg / l. This is due to the flow velocity used in the study because the researcher did not regulate the flow speed, the flow speed itself affects the contact time of water with activated carbon so that Fe iron absorption is more effective.

In table 6, it can be seen that the filter with a cross-sectional area of 2 inches of water discharge is 0.0083 ml/second, the cross-sectional area of 3 inches of water discharge is 0.015 ml / second and the cross-sectional area of 4 inches of water discharge is 0.025 ml/second. The larger the cross-sectional area, the greater the water discharge produced.

CONCLUSION

1. The level of Fe before receiving treatment was 1.05 ml.
2. The Level of Fe dropped after receiving treatment with a difference in cross-sectional area of 2 inches of 47.62%
3. Fe levels dropped after receiving treatment with a 3-inch cross-sectional area difference of 59.05%.
4. Fe Levels dropped after receiving treatment with a difference in 4-inch cross-sectional area of 63.81%
5. Fe Levels do not meet the requirements of the Ministry of Health's healthy water quality standards after being filtered using a sieve with a cross-sectional area of 2 inches, 3 inches, and 4 inches.

REFERENCES

- 1) Agustina, Novita (2022) Kebutuhan Cairan Tubuh Kita dalam Sehari. Tersedia di https://yankes.kemkes.go.id/view_artikel/1531/kebutuhan-cairan-tubuh-kita-dalam-sehari#:~:text=Pada%20bayi%20usia%20%3C%201%20tahun,sedangkan%20pada%20wanita%20dewasa%2050.
- 2) Depkes RI 2002, Penyediaan Air Bersih : Jakarta
- 3) Hartono, Y. D., & Pratiwi, Y. E. (2022). Efektivitas Limbah Serat Batang Sagu dalam Mengurangi Kadar Besi (Fe) pada Air Sumur. *Jurnal Inovasi Sains dan Teknologi (INSTEK)*, 5(2), 13-18.

Effectiveness of Coconut Charcoal Shell Activated Carbon Filtration to Lower Fe in Cisterns Water: A Case Study in Arsopura, Keerom Regency, Papua

- 4) Jayawardena, A.W (2022;2023) Water for Life: drinking water, health, food, and energy nexus. Routledge Taylor & Francis Group. ISBN: 978-1-003-32920-6
- 5) Keputusan Menteri Kesehatan Republik Indonesia Nomor : 907/Menkes/SK/VII/2002, Menteri Kesehatan Republik Indonesia
- 6) Mulyono, S., Mulyani, W., & Kriswandana, F. (2020). Efektifitas Media Penukar Ion Zeolit Dan Ferolit Dalam Menurunkan Kadar Fe Air Sumur. *Jurnal Penelitian Kesehatan Suara Forikes*, 11, 95-100.
- 7) Novaliani, W. (2022). Penentuan Kadar Besi, Kadmium, Kromium, Mangan, dan Seng Dalam Air Tanah Menggunakan Spektrofotometer Serapan Atom.
- 8) Nurdin, A. (2021). Uji efektivitas arang batok kelapa dan arang kulit kenari untuk menurunkan kadar besi (fe) air sumur gali. *Buletin Keslingmas*, 40(3), 100-105.
- 9) Rahayu, T. 2004. Karakteristik Air Sumur Dangkal di Wilayah Kartasura dan Upaya Penjernihannya. *Jurnal MIPA*. Vol. 14 (1), Hlm.40-51. <http://repository.usu.ac.id/bitstream/123456789/33124/2/Reference.pdf>
- 10) Ridwansyah, 2003. Medan : Pengolahan Kopi. Skripsi. Universitas Sumatera Utara, Fakultas Pertanian. 14-16 <http://repository.usu.ac.id/bitstream/123456789/30488/1/Reference.pdf>
- 11) Sangadjisowohy, I., & Muhamad, M. T. (2018). Efektifitas Media Arang Batok Kelapa Dalam Menurunkan Kadar Salinitas Pada Air Bersih di Ake Gaale Tahun 2017. *Promotif: Jurnal Kesehatan Masyarakat*, 8(2), 147-151.
- 12) Sembiring, J.B.F. 2007. Penggunaan Media Filtran Dalam Upaya Mengurangi Beban Cemar Limbah Cair Industri Kecil Tapioka. Bogor : Departemen Teknologi Industri Pertanian Fakultas Teknologi Pertanian Institut Pertanian Bogor
- 13) Setiati, dkk, 2005. Naskah Lengkap Penyakit Dalam. Pusat Informasi dan Penerbitan Bagian Ilmu FKUI, Jakarta
- 14) Simbolon, Renita (2017) Pengaruh Penambahan Arang Tongkol Jagung Dan Serbuk Tongkol Jagung (*Zea Mays*) Terhadap Penurunan Kadar Besi (Fe), Total Padatan Tersuspensi (TSS), Total Padatan Terlarut (TDS), Kekeruhan, Dan pH Pada Air Rawa, tersedia di <http://repository.usu.ac.id/handle/123456789/31924>
- 15) Slamet J.S 2004. *Kesehatan Lingkungan*. Gajah Mada University Press : Yogyakarta 2007. *Kesehatan Lingkungan*. Gajah Mada University Press : Yogyakarta. <http://repository.usu.ac.id/bitstream/123456789/33124/2/Reference.pdf>
- 16) Subamia, I. D. P., Wahyuni, I. S., & Widiasih, N. N. (2017). Identifikasi, Karakterisasi, Dan Solusi Alternatif Pengelolaan Limbah Laboratorium Kimia. In *Seminar Nasional Riset Inovatif* (Vol. 5, pp. 50-58).
- 17) Sutrisno C.T. Ir., Dkk. (2006), *Teknologi Penyediaan Air Bersih*, Rineka Cipta, Jakarta <http://repository.usu.ac.id/bitstream/123456789/33124/2/Reference.pdf>
- 18) Tchobanoglous, G, 1991, *Wastewater, Engineering Treatment, Disposal And Reuse*, Third Edition. McGraw– HillInc, New York
- 19) Webber, W.J. 1972. Adsorption In Heterogeneous Aqua System. *Jour Awwa*.



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The Influence of Work Training on Employee Performance: Systematic Literature Review



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ABSTRACT: Systematic literature review has the aim of synthesizing several literatures, namely from 2017 to 2022 relating to the effect of job training on employee performance. The preparation of this study uses the Preferred Reporting Item For Systematic Review and Meta-Analysis method from several studies that have a relationship with the effect of job training on employee performance. Data collection uses the Pupuation, Intervention, Comparison, and Outcome methods using two accesses, namely Science Direct and Cambridge e Journals. A total of 146 data were filtered with data inclusion criteria so that 30 data were obtained according to the eligibility standard. It was obtained from the results of this study that job training greatly influences employee performance, so that these employees can explore deeper skills and knowledge about the fields that are the focus of positions in the world of work in order to improve their performance or contribution in a company or institution.

KEYWORDS: Systematic literature review, Job Training, Employee Performance.

I. INTRODUCTION

In the current era of globalization, increasingly aggressive competition between companies and advances in technology are a challenge for companies to make changes in various aspects of company management. Facing changes and competition both at the national and international levels, employees must adapt to technological changes, such as the emergence of new technologies or new ways of working in companies. Situations like this make companies need human resources who have knowledge, skills, abilities and high achievements who can focus their abilities on tasks and responsibilities for the benefit of the company (Azevedo & Shane, 2019) .

Companies need to carry out human resource planning starting with looking at the implications of strategic planning in the company, both in general, broadly and thoroughly towards workforce needs. According to Ast & Nyhuis, (2022) "strategic goals have operational, production, financial, marketing, and human resource functional implications", so companies need strategic goal plans. According to Meyer et al., (2022) human resources are the main element of the organization compared to other elements such as capital, technology and money because humans themselves control the others.

An effective organization must be able to find, utilize, maintain, and develop people to achieve the desired results (Nguyen et al., 2021) . It can be concluded that the goals to be achieved by the company are determined by business people, both in planning, organizing, directing, coordinating and controlling activities. human resources in the company play a role as a determinant of the company's success in achieving the desired results (S. Yao et al., 2019) . One way to develop the performance of employees in the company is with a training program where the program is implemented according to the needs of the company. Training is the process of learning the basic skills that new employees need in carrying out their work (Martins, 2021) . Meanwhile, according to Bozionelos et al., (2020) , training is a learning process intended for employees to carry out satisfying work.

According to Marmier et al., (2021) , the reason for implementing training for employees is that newly recruited employees often do not understand exactly how to work, changes in the work environment and workforce, increase company competitiveness and increase employee productivity, employees adjust to existing regulations . Xie et al., (2020) , argues that employee performance is defined as the ability of employees to do certain skills. Employee performance is very necessary, because with this performance it will be known how far the employee's ability is in carrying out the tasks assigned to him, so it is necessary to set clear and measurable criteria and set them together as a reference (Cau-Bareille et al., 2022).

Seeing from the description above it is known that one of the factors that influence employee performance is job training. Therefore, the researchers in this study took the title "Job Training on Employee Performance".

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The purpose of this literature review is to synthesize the published studies related to the effect of job training on employee performance. Thus, this research focuses on: job training on employee performance obtained through previous research. Sources of research data using secondary sources from previous studies.

II. RESEARCH METHODS

This systematic literature review was put together using PRISMA (Preferred Reporting for Systematic Review and Meta Analysis). Citing research on behavioral theory-related studies of how job training affects performance. The data collection method for this comprehensive literature is by utilizing the science direct electronic database and Cambridge e-journals. To collect data sources used the PICO (Population, Intervention, Comparison, and Outcome) method. This literature review data collection method uses 2 access, namely Science direct and Cambridge e journals.

PICO METHOD	DESCRIPTION
Population	Employees or Staff or Labor
Intervention	Work training
Results	performance improvement

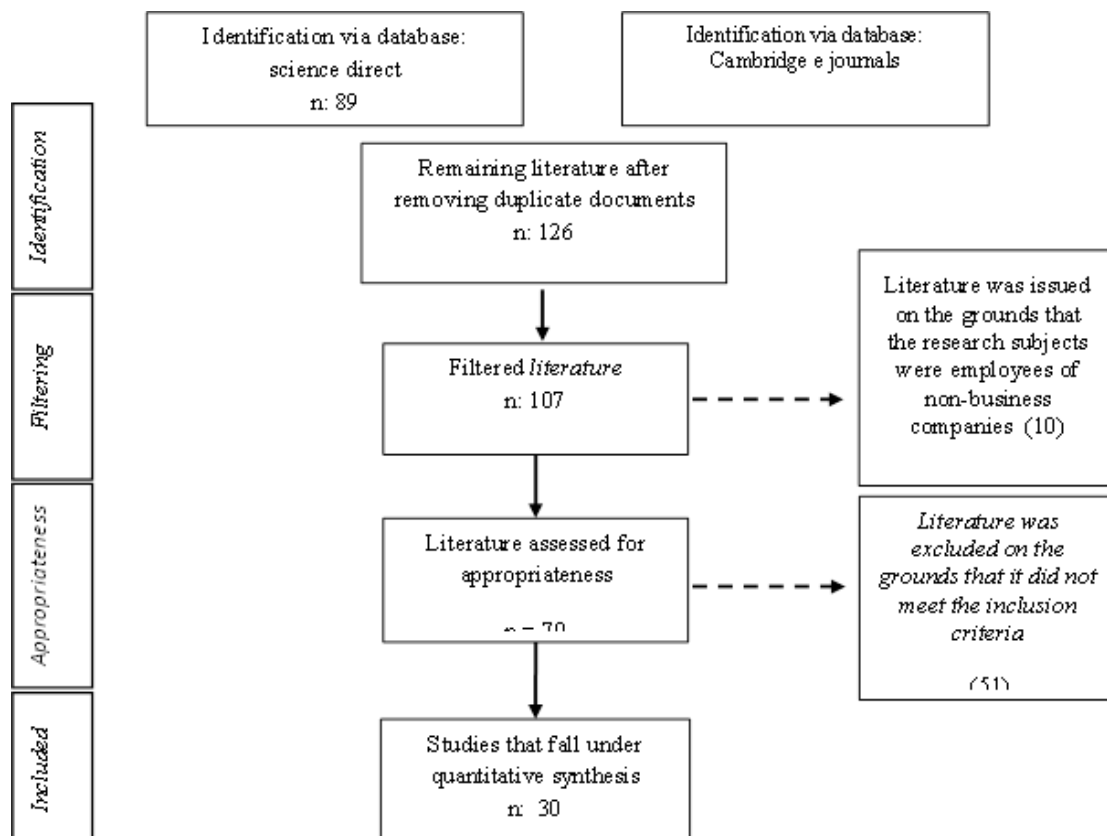
A. Data Inclusion Criteria

Criteria will be used in a systematic literature review to assess various research designs:

TYPE	INCLUSION
LITERATURE TYPE	Research Articles
PUBLICATION YEAR	2017-2022
LITERATURE ORIGINAL	Literature international
LANGUAGE	Literature English
LITERATURE STANDARD	Literature indexed index 1 to syntax 3 (Science direct and e Cambridge journals)
SAMPLE	Leaders and or employees of business companies
RESEARCH METHODS	Correlation

B. Synthesis Data

The PRISMA technique was used in this study for classification. The data from the extraction process is filtered. Below is a PRISMA flow chart exemplifying a resource management strategy.



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C. General Characteristics of Literature Review

The literature to be checked for reasonable validity generally exhibits the following characteristics. Summary and discussion points of the selected literature are included in general characteristics as tables and descriptions. Data inclusion criteria refer to general characteristics in this literature review. By year of publication 8% in 2018, 12% in 2019, 19% in 2020, 25 in 2021, 26 in 2022. Any information used in this research is taken from works published with two (2) eye categories leading lesson and employee and correlational research designs. There is 15% literature on workers and company employees and executives, and 85% material on employee research. To conduct a literature review, the authors collect data. found 30 English-language international literature that met the data inclusion criteria.

III. DISCUSSION

Job training is very important to help individuals advance their skills, especially in terms of increasing the level of performance above that set by the company (Ast & Nyhuis, 2022). Yao et al., (2020) state that every effort is made to improve the performance of employees in the position they currently hold through training. Typically, training is used to help employees improve their performance weaknesses (S. Yao et al., 2019). Using the training principle as a guide, we train staff members to work more efficiently. The following are the principles of learning in training, as stated by Jaworski et al., (2018): interactive, applicable, repeatable, transferable, and providing feedback on the progress of the trainees. It would be more efficient if these concepts more practiced (Žepic, 2021). As many as 30 pieces of literature have findings indicating that job training, one way to improve employee capabilities and gain experience, will have an impact on performance achievement (Marmier et al., 2021). Studies show dominant and favorable findings. The relationship between training and improving employee performance cannot be separated from their interactions with human resources. Because trained and skilled human resources are needed to successfully achieve company goals (Jaworski et al., 2018). The psychological side and abilities of an employee are closely tied to the world of performance through the personality approach used by human resources (Kulkarni et al., 2022). If assessed in terms of its significance, the results of the ability variable on performance show qualifications that are directly proportional (Cau-Bareille et al., 2022). Job training will increase self-ability and experience as reinforcement to influence employee performance (Huang et al., 2022).

TABLE 1. Literature Review Study

Reference	Title	Sample	Types of research	Findings
(Azevedo & Shane, 2019)	New training programs in developing cultural intelligence can also increase innovative work behavior and resilience: Longitudinal pilot study of graduate students and professional employees	Employee	Correlation	A longitudinal pilot study was designed to test the effectiveness of this new training program with two groups of participants: MBA students from a university in California, United States, and Human Resources professionals from an energy company in Saskatchewan, Canada. The results from the pretest-posttest data analysis confirmed that while the participants' cultural intelligence abilities improved significantly after the training program, it also revealed a significant increase in the participants' innovative work behavior for both groups, and resilience increased significantly for the MBA students. Implications for future research and practice are discussed.
(Ast & Nyhuis, 2022)	Approach to determining workforce functional flexibility based on training loss and employee-specific risks	Employee	Correlation	Predicting training costs and placing them in relation to the likelihood of these risks occurring allows an approach to assessing the consequences of changes in functional flexibility. The proposed approach aims to provide a framework for defining risk-optimized functional flexibility and provide a basis for planning workforce competency development programs.
(Meyer et al., 2022)	Better support for supportive work. How to improve brand performance through better	Employee	Correlation	This study enhances the literature on the importance of supportive work in driving brand performance according to a motivational framework based on rewards and recognition

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	compensation and training for in-store merchants			
(Nguyen et al., 2021)	Do workers benefit from on-the-job training? New evidence of matching employer-employee data	Employee	Correlation	These findings indicate that on-the-job training plays an important role in employee benefits, especially for young employees.
(S. Yao et al., 2019)	The effectiveness of error management training in the hospitality industry: Impact on perceived fairness and service recovery performance	Employee	Correlation	A mediating effect on perceptions of fairness was also found. All hypotheses are supported and the findings are consistent in both studies.
(Martins, 2021)	Employee training and company performance: Evidence from ESF grant applications	Employee	Correlation	Combining several rich data sets, we compared a large number of the potential outcomes of these companies, while following them for several years both before and after the grant decision. Our difference-in-difference model predicts a significant positive effect on uptake (training hours and spending), with limited deadweight; and that such additional training results in increased sales, added value, employment, productivity and exports. This effect tends to be at least 5% and, in some cases, 10% or more, and is strong on multiple dimensions.
(Bozionello et al., 2020)	Improving employee career sustainability through training: The role of openness of career actors and supervisor support	Employee	Correlation	This study provides a comprehensive albeit short-term overview of the continuous career process as conceptualized in the theoretical literature. In addition, it describes the effectiveness of job training in improving work ability. The implications of the study for further theory and research on sustainable careers and employability are discussed.
(Marmier et al., 2021)	Towards a proactive vision of training for industry 4.0: from diagnostics of required skills to employee training	Employee	Correlation	To this end, this paper introduces an overview of how to propose actual training on Industry 4.0 topics both customized for companies and for learners. We detail more specifically in this paper 3 tools that we developed at the University of Strasbourg: (1) a diagnostic tool to obtain the maturity level of companies and propose customized learning paths. (2) a grid set for de
(Xie et al., 2020)	How can green training enhance employee career growth?	Employee	Correlation	The findings also show that employee performance mediates the relationship between green training and career growth. Furthermore, this study provides support for the negative moderator role of the barrier stressor on the indirect effect of green training on career growth through employee performance; conversely, self-efficacy was shown to strengthen the indirect effect of green training on career growth through employee performance. Overall, this work expands our understanding of green training in a transitional economy context by demonstrating that green training can help employees accelerate their career growth.

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(Mahela et al., 2022)	Human resources training to implement transmission scheme for renewable power evacuation in India	Employee	Correlation	This model can help to frame training policies for people working in electric utilities and can be used explicitly to run renewable power transmission schemes and evacuation schemes to achieve the expected performance of employees.
(Ozkaser, 2019)	Impact of training on employee motivation in human resource management	Employee	Correlation	This study was conducted on large-scale companies in the service sector for the domestic market. The aim is to determine the level of training impact, depending on its relationship to motivation. Therefore, this research is divided into three main phases. In the first step, literature gaps were determined and a literature search was summarized. Second, the case study is equipped with the SPSS scientific approach and in the final stage produces conclusions that support the hypothesis. Therefore, training can be considered as the key to increase motivation.
(Salem & Abdien, 2017)	Implementation of cross-training of employees during hazardous conditions in hotels	Employee	Correlation	The results reveal that it is very important for hotel department staff to be cross-trained in different departments or in different functions within departments. The results also show that effective cross-training techniques can lead to better performance, employee retention and service quality.
(Žepić, 2021)	Increasing Cognitive Ability of Elderly Employees with Computerized Cognitive Training (CCT)	Employee	Correlation	These studies show that CT and CCT are feasible in work organizations and can also be effective. A large number of empirical studies with CT and CCT in work organizations will be needed to demonstrate more precisely which types of CT and CCT are most appropriate and effective for convincing both leaders in work organizations and older employees that CT and CCT are useful and beneficial to them. In the near future, CCT may become one of the most successful interventions for slowing cognitive aging, increasing work productivity, increasing job satisfaction and overall well-being of older employees.
(Kroese, 2022)	Is employee training truly gender neutral? Introducing a sex/gender sensitive training model	Employee	Correlation	This review introduces a sex/gender-sensitive model of training to guide future research and practice, including recommendations for moving beyond decontextualized sex-binary category-based research towards a nested and interrelated understanding of the different aspects of sex and gender in training.
(Leung et al., 2022)	Is VR game training more effective for hospitality employees? Elongated experiment	Employee	Correlation	The study findings have significant implications for academics and professionals.
(Y. Yao et al., 2020)	Job training and organizational performance: Analysis from medical institutions in China	Employee	Correlation	This effect, however, varies across types of medical institutions. Grassroots medical institutions in the district that function as health gatekeepers (known as primary health care institutions, PHCI) receive the most number of hospital visits after training. In addition, training resulted in a 16.5% increase in average performance wages for district PHCIs, and a 52.8% increase in employee performance wages

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				for higher-level public hospitals in cities. In general, by participating in the training, PHCI in the districts earn more overall income through non-health insurance income.
(Amrutha & Geetha, 2021)	Linking emotional intelligence to safety performance: The role of situational awareness and safety training	Employee	Correlation	Practical Application: Aviation managers must monitor the adequacy and effectiveness of safety training; this can make pilots' situational awareness and safety performance less dependent on personal attributes (eg, EI), which the organization has less control over. When training capacity is temporarily limited, priority may be given to those with low EI.
(Wang et al., 2021)	Linking organizational green training and voluntary workplace green behavior: The mediating role of supportive green climate and employee green satisfaction	Employee	Correlation	tion (GS) in the context of GT-VWGB, where, GSC and GS successively and partially mediated GT-VWGB. Our study minimizes existing gaps in the green behavior literature, thereby providing academics with a potential avenue for further research in this area. It provides practitioners, managers and policy makers with an in-depth understanding of company-wide environmental management practices such as green training, which contribute to organizational sustainability and can help them adopt company-specific green strategies that increase employee GS and VWGB.
(Pham et al., 2020)	Managing environmental challenges: Training as a solution to improve employee green performance	Employee	Correlation	The findings reveal that environmental training programs are an important tool for directly driving EIGP, and this EIGP-environmental training relationship is significantly mediated by employee environmental commitment. Interestingly, this study shows support for our prediction that the mediating role of employee environmental commitment on the environmental training-EIGP link is stronger in hotels managed by Western hospitality firms. However, unexpectedly, cultural influences did not moderate the effect of environmental training on EIGP. In addition to theoretical contributions, our research has important practical implications that can help organizations reduce their carbon footprint. Limitations and directions for further research have also been discussed.
(Sir, 2022)	Promoting employee green behavior in the context of Chinese and Vietnamese hospitality: The role of green human resource management practices and responsible leadership	Employee	Correlation	The findings reveal that, in the Chinese and Vietnamese samples, the effect of green HRM practices on hospitality employees' OCBE is mediated by the two-stage mediation of responsible leadership and employees' environmental responsibility. The strength of the HRM system serves as a moderator to strengthen the association of green HRM practices with responsible leadership. From these findings, this study presents implications for scholars and practitioners in the hospitality discipline.
(Kulkarni et al., 2022)	The role of digital simulation in employee training	Employee	Correlation	The results showed that the digital simulation training method was more effective than the traditional training method. This suggests that the application of digital simulation training

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				tools helps in training programs to train employees in the digital economy
(Stirpe et al., 2022)	Satisfaction with HR practices and employee performance: A moderated model of engagement and mediation health	Employee	Correlation	These findings provide new insights into the HR causal chain and help practitioners to better manage HRP design, communication, and audits.
(Huang et al., 2022)	Technological solutions to increase the level of knowledge and practical skills of employees: SVVR-based blended learning approach to professional training	Employee	Correlation	The practical skills test results in the workplace further imply that, compared to students who adopt the C-BL mode, students who adopt the SVVR-BL mode have better assessment, analysis, and overall performance of the coping process when encountering practical problems. As a result, SVVR-BL not only helps students gain knowledge and improve their higher order thinking, but also assists them in applying what they have learned to solve real problems. These results can be an important reference for SVVR-BL studies and the design of professional training programs in the future.
(Del-Castillo-Feito et al., 2021)	The effect of implementing environmental policies and environmental training of employees on the level of legitimacy of multinational companies in developing countries	Employee	Correlation	The research contributions reveal a major understanding of the influence of social responsibility policies on organizational legitimacy in the context of multinational corporations, emphasizing environmental commitment as a key factor for organizational legitimacy in developing countries. In addition, our findings provide new strategic guidance for managers of multinational companies to address foreign responsibilities.
(Kim et al., 2019)	Effect of outdoor experiential training on organizational citizenship behavior of part-time employees	Employee	Correlation	Future research will be needed to understand the full influence of the natural environment on OCB, particularly in the hospitality industry. Researchers must continue to understand the effects of EAOET on variables such as positive emotions and group cohesion to contribute to this research. Scholars should conduct future research on organizations that effectively reflect industry dynamics
(Jaworski et al., 2018)	Effects of training satisfaction, employee benefits, and incentives on part-time employee commitment	Employee	Correlation	This study surveyed part-time hotel employees to determine whether training methods and duration affect training satisfaction. The impact of benefits and incentives received, and training satisfaction on work commitments was also determined. On-the-job training and job image were found to influence training satisfaction. Choose benefits and incentives and training satisfaction impact on commitment. Implications are discussed.
(Sas et al., 2021)	Impact of training sessions on physical safety awareness: Measuring knowledge, attitudes, and self-reported behavior by employees	Employee	Correlation	While the first study found a significant relationship between employee knowledge and attitudes and self-reported behavior, the second study demonstrated that training sessions had a positive impact on employees' safety awareness levels. Based on the findings from both studies, recommendations for practice and future research are presented.
(Erten et al., 2022)	The role of virtual and augmented reality in	Employee	Correlation	In this study, sample gamification scenarios were created for two different activities of

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	employee occupational health and safety training in PV power systems and evaluation with a sustainability perspective			working at height during PV installation. Algorithms have been developed to enhance VR/AR applications in OSH training with sample gamification scenarios created and to support the deployment of these training applications. In this way, it aims to shed light on the necessary information for VR/AR technologies at the academic level and to contribute to related content developers, researchers, institutions and organizations from a sustainability perspective.
(Cau-Bareille et al., 2022)	Training: A way to reduce the risk of weakening older workers at work and on the job? Call center case	Employee	Correlation	These results highlight dimensions of training and work organization that are less likely, especially for older telemarketers. They also show some form of weakening among these workers: at work, in relation to work and in work.
(Assefa et al., 2022)	Unpacking the negative impact of early informality on innovation: The mediating role of investment in R&D and employee training	Employee	Correlation	Empirical evidence supports our hypothesis that investment in R&D and employee training mediates the negative relationship between initial informality and innovation. Theoretical as well as policy and managerial implications are discussed.

IV. CONCLUSION

Discussion above provides an overview of the influence of job training factors on employee performance. In conclusion, from these factors someone with the knowledge and skills to explore further about the interests deepened to be able to compete and more easily become a great employee with good performance. Various types of review journals related to job training on employee performance. Table 1 of a review of reputable international journals shows a summary of the influence of the job training process. Various types of job training and their causes are discussed. Job training is a serious problem for increasing knowledge and skills in the 4.0 era. Furthermore, to be able to compete in the free market, job training is needed for everyone or workers who are ready to work or have entered working age. Different conclusions or findings are reported by different researchers to improve the performance and quality of job training.

REFERENCES

- 1) Amrutha, V. N., & Geetha, S. N. (2021). Linking organizational green training and voluntary workplace green behavior: Mediating role of green supporting climate and employees' green satisfaction. *Journal of Cleaner Production*, 290, 125876. <https://doi.org/10.1016/j.jclepro.2021.125876>
- 2) Assefa, D. Z., Liao, C. T., & Misganaw, B. A. (2022). Unpacking the negative impact of initial informality on innovation: The mediating roles of investments in R&D and employee training. *Technovation*, 114(January), 102455. <https://doi.org/10.1016/j.technovation.2022.102455>
- 3) Ast, J., & Nyhuis, P. (2022). Approach for determining functional flexibility of the workforce based on training losses and employee specific risks. *Procedia CIRP*, 107, 839–844. <https://doi.org/10.1016/j.procir.2022.05.072>
- 4) Azevedo, A., & Shane, M. J. (2019). A new training program in developing cultural intelligence can also improve innovative work behavior and resilience: A longitudinal pilot study of graduate students and professional employees. *International Journal of Management Education*, 17(3), 100303. <https://doi.org/10.1016/j.ijme.2019.05.004>
- 5) Bozionelos, N., Lin, C. H., & Lee, K. Y. (2020). Enhancing the sustainability of employees' careers through training: The roles of career actors' openness and of supervisor support. *Journal of Vocational Behavior*, 117(April 2018), 103333. <https://doi.org/10.1016/j.jvb.2019.103333>
- 6) Cau-Bareille, D., Jolivet, A., Thébault, J., & Delgoulet, C. (2022). Training: A way of reducing the risks of weakening for older workers at work and in employment? The case of a call centre. *Safety Science*, 148(January). <https://doi.org/10.1016/j.ssci.2021.105581>
- 7) Del-Castillo-Feito, C., Blanco-González, A., & Díez-Martín, F. (2021). The effect of implementing environmental policies and employees' environmental training in multinational companies' legitimacy level in emerging countries. *Journal of Cleaner Production*, 312(May). <https://doi.org/10.1016/j.jclepro.2021.127817>

The Influence of Work Training on Employee Performance: Systematic Literature Review

- 8) Erten, B., Oral, B., & Ziya, M. (2022). The role of virtual and augmented reality in occupational health and safety training of employees in PV power systems and evaluation with a sustainability perspective. *Journal of Cleaner Production*, 379(P2), 134499. <https://doi.org/10.1016/j.jclepro.2022.134499>
- 9) Huang, H., Hwang, G. J., & Jong, M. S. Y. (2022). Technological solutions for promoting employees' knowledge levels and practical skills: An SVVR-based blended learning approach for professional training. *Computers and Education*, 189(July), 104593. <https://doi.org/10.1016/j.compedu.2022.104593>
- 10) Jaworski, C., Ravichandran, S., Karpinski, A. C., & Singh, S. (2018). The effects of training satisfaction, employee benefits, and incentives on part-time employees' commitment. *International Journal of Hospitality Management*, 74(February 2017), 1–12. <https://doi.org/10.1016/j.ijhm.2018.02.011>
- 11) Kim, S. H., Childs, M., & Williams, J. (2019). The effects of outdoor experiential training on part-time student employees' organizational citizenship behavior. *Journal of Hospitality and Tourism Management*, 41(February), 90–100. <https://doi.org/10.1016/j.jhtm.2019.10.009>
- 12) Kroese, I. (2022). Is employee training really gender-neutral? Introducing a sex/gender-sensitive model of training. *Human Resource Management Review*, 32(4), 100890. <https://doi.org/10.1016/j.hrmr.2021.100890>
- 13) Kulkarni, P. M., Appasaba, L. V, Gokhale, P., & Tigadi, B. (2022). Role of digital simulation in employee training. *Global Transitions Proceedings*, 3(1), 149–156. <https://doi.org/10.1016/j.gltip.2022.04.014>
- 14) Leung, X. Y., Chen, H., Chang, W., & Mhlanga, L. (2022). Is VR game training more effective for hospitality employees? A longitudinal experiment. *Tourism Management Perspectives*, 44(September), 101020. <https://doi.org/10.1016/j.tmp.2022.101020>
- 15) Mahela, O. P., Khan, B., Khatry, S. K., & Bisawa, T. (2022). Human resource training to implement transmission schemes for renewable power evacuation in India. *Utilities Policy*, 76(May 2021), 101376. <https://doi.org/10.1016/j.jup.2022.101376>
- 16) Marmier, F., Deniaud, I., Rasovska, I., & Michalak, J. L. (2021). Towards a proactive vision of the training for the 4.0 industry: From the required skills diagnostic to the training of employees. *IFAC-PapersOnLine*, 54(1), 1144–1149. <https://doi.org/10.1016/j.ifacol.2021.08.135>
- 17) Martins, P. S. (2021). Employee training and firm performance: Evidence from ESF grant applications. *Labour Economics*, 72(September), 102056. <https://doi.org/10.1016/j.labeco.2021.102056>
- 18) Meyer, J. H., González, E. M., & Lopez-Lomelí, M. A. (2022). Better support for supportive jobs. How to improve brand performance through better compensation and training for in-store merchandisers. *Journal of Retailing and Consumer Services*, 64(September 2021). <https://doi.org/10.1016/j.jretconser.2021.102750>
- 19) Nguyen, T. Q., Nguyen, A. T., Tran, A. L., Le, H. T., Le, H. H. T., & Vu, L. P. (2021). Do workers benefit from on-the-job training? New evidence from matched employer-employee data. *Finance Research Letters*, 40(June 2020), 101664. <https://doi.org/10.1016/j.frl.2020.101664>
- 20) Ozkeser, B. (2019). Impact of training on employee motivation in human resources management. *Procedia Computer Science*, 158, 802–810. <https://doi.org/10.1016/j.procs.2019.09.117>
- 21) Pham, N. T., Vo-Thanh, T., Shahbaz, M., Duc Huynh, T. L., & Usman, M. (2020). Managing environmental challenges: Training as a solution to improve employee green performance. *Journal of Environmental Management*, 269(May), 110781. <https://doi.org/10.1016/j.jenvman.2020.110781>
- 22) Salem, I. E. B., & Abdien, M. K. (2017). Implementation of employee cross-training during perilous conditions in hotels. *Tourism Management Perspectives*, 23, 68–74. <https://doi.org/10.1016/j.tmp.2017.05.005>
- 23) Sas, M., Reniers, G., Ponnet, K., & Hardyns, W. (2021). The impact of training sessions on physical security awareness: Measuring employees' knowledge, attitude and self-reported behaviour. *Safety Science*, 144(August), 105447. <https://doi.org/10.1016/j.ssci.2021.105447>
- 24) Stirpe, L., Profili, S., & Sammarra, A. (2022). Satisfaction with HR practices and employee performance: A moderated mediation model of engagement and health. *European Management Journal*, 40(2), 295–305. <https://doi.org/10.1016/j.emj.2021.06.003>
- 25) Tuan, L. T. (2022). Promoting employee green behavior in the Chinese and Vietnamese hospitality contexts: The roles of green human resource management practices and responsible leadership. *International Journal of Hospitality Management*, 105(May), 103253. <https://doi.org/10.1016/j.ijhm.2022.103253>
- 26) Wang, Z., Jiang, Z., & Blackman, A. (2021). Linking emotional intelligence to safety performance: The roles of situational awareness and safety training. *Journal of Safety Research*, 78, 210–220. <https://doi.org/10.1016/j.jsr.2021.06.005>

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- 27) Xie, X., Zhu, Q., & Qi, G. (2020). How can green training promote employee career growth? *Journal of Cleaner Production*, 259, 120818. <https://doi.org/10.1016/j.jclepro.2020.120818>
- 28) Yao, S., Wang, X., Yu, H., & Guchait, P. (2019). Effectiveness of error management training in the hospitality industry: Impact on perceived fairness and service recovery performance. *International Journal of Hospitality Management*, 79(December 2018), 78–88. <https://doi.org/10.1016/j.ijhm.2018.12.009>
- 29) Yao, Y., Liu, G. G., & Cui, Y. (2020). Job training and organizational performance: Analyses from medical institutions in China. *China Economic Review*, 60(227), 101396. <https://doi.org/10.1016/j.chieco.2019.101396>
- 30) Žepić, Z. M. (2021). Improvement of cognitive abilities of older employees with computerized cognitive training (CCT). *IFAC-PapersOnLine*, 54(13), 651–656.



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Characteristics of Stone-Base Laterized Concretes



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ABSTRACT: Stone-base, a material often used for base construction in flexible pavements, have in recent studies been shown to be suitable as an all – in – concreting aggregate. This study investigated the crushing, flexural and split tensile strengths as well as other mechanical properties of stone-base laterized concretes (SBLC). Normal river sand fine aggregate was partially replaced by laterite while the coarse aggregate proportion was made of stone base. Concrete mixes containing 100%, 75%, 50%, 25% and 0% replacement (by weight) of river sand with laterite and stone base as coarse aggregate were prepared. The workability of all fresh concrete mixes was determined using the slump test. Observed slumps ranged between 20 and 70mm and the maximum crushing strength of 23.6N/mm² was produced by the specimen containing 25% laterite and 75% sand. All the strengths increased with the age of curing and the strengths were quite comparable with that of the control concrete which stood at 25.1N/mm². A maximum density of 2329kg/m³ was recorded at 28 days curing. This density showed that stone-based laterized concretes are normal weight concretes and can be used for construction purposes.

KEYWORDS: Stone base, crushing strength, Laterized concrete, flexural strength, Split tensile strength.

1.0 INTRODUCTION

The provision of housing is governed by the need for shelter among other factors and according to Fitch and Branch (1960); the need for shelter must be met by materials that the environment can afford. Such materials must therefore be widely and readily available, economically appropriate to the environment, thermally efficient and socially acceptable. Besides, the building system derived from such materials must allow participation from the community and thereby improving the cash economy of that community. Materials that fit into these descriptions include lateritic soils used for replacing sand in concrete and stone-based aggregate which can replace the coarse granite in concrete. Knowledge of the structural characteristics and performance of concrete made with these materials is necessary for the accurate design of such structures. These and more necessitated this study. The use of stone base as coarse aggregate in laterized concrete can help positively in reducing the cost of concrete. Concrete containing laterite soils are cheaper (Udoeyo and Iron, 2006) and would even be cheapest if the conventional coarse aggregate is replaced with stone base to have stone base laterized concrete (SBLC).

2.0 MATERIALS AND METHODS

2.1 Materials: Materials used included Portland limestone cement, sharp sand, laterite soil, stone base and water.

2.2 Cement: UNICEM brand of Portland limestone cement produced in Cross River State, Nigeria was used for the study. The cement conformed to the requirements of BS 12 and was safe kept to avoid dampness.

2.3 Sharp Sand: River sharp sand obtained from Ibagwa River, Akwa Ibom State, Nigeria was used for the study. The sand conformed to the standards recommended in BS 882: 1995: Part 1. The sand was a zone 2 aggregate and had a specific gravity of 2.66 and a maximum aggregate of 4.75mm.

2.4 Laterite soil: This fine aggregate was obtained from a borrow pit located at Akpasak Estate, Uyo, Nigeria. The laterite was treated in conformity to the requirements of BS 882: 1995: Part 1. It had a specific gravity of 2.53. The chemical constituents of the laterite as determined in the Ministry of Science and Technology laboratory, Akwa Ibom State are presented in Table 1.

2.5 Water: Potable tap water obtainable from the civil engineering laboratory, University of Uyo, Nigeria was used throughout the research experimentation. The water conformed to the requirements of BS 3148: 1975.

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2.6 Stone Base: this aggregate was obtained from a construction site where a 2.5km road dualization project was on going. The stone base was tested in conformity with BS 882: 1983.

3.0 METHODOLOGY

All the materials were graded according to the relevant standards and batching was done by weight throughout the experimentation. A prescribed mix of 1:2:4 proportions of cement: sand/laterite: stone base concrete was prepared for casting into the required specimens. Mixing of the batched materials were manually effected. The workability of the fresh concrete mix was determined using the slump test. The sharp sand portion was partially replaced with laterite in the percentages of 0, 25, 50, 75 and 100.

3.1 Preparation and testing of crushing strength specimens: Seventy five stone base laterized concrete (SBLC) cubes (150 x 150 x 150mm size) were moulded; 15 at each of the replacement levels. Three cubes were tested each for crushing strengths at ages of 3 days, 7 days, 14 days, 21 days and 28 days. The steel cube moulds were properly oiled and cleaned before filling with concrete in three approximately equal layers. Each layer was rammed with 35 strokes of the steel rod and the final level was troweled smooth and labelled. The concrete cubes were then placed in a damp place for 24 hours after which they were demoulded and cured in accordance to BS 1883: Part 3. The digital compression machine was used for testing the cubes at a required curing age. The equipment recorded the ultimate load at failure as well as the crushing strength in N/mm². Equation 1 was also used to confirm the crushing strength computed.

$$f_c = P/A \quad [1]$$

Where,

f_c = crushing strength in N/mm²; P = Ultimate load at failure in kN; A = the cross sectional area of the cube in mm².

3.2 Preparation, Curing and Testing of Flexural Strength Test Beams

Flexural test beams were prepared in conformity with BS 1881: Part 108:1983 and BS1881: Part3: 1970 requirements. The mould used was 150 x 150 x 500mm beam size. After oiling the inside of the mould lightly with mineral oil, it was filled with the mixed concrete in three layers. Each layer was evenly rammed 150 strokes with a steel bar 380mm long weighing 1.8kg and having a ramming face 25mm square. The surface of the concrete was then towelled as smooth as practicable levelled with the top of the mould. Each beam was identified and kept in a damp environment for 24 hours before demoulding. After 24 hours the beams were removed from the mould and cured in a water bath for 28 days before testing.

Testing of flexural beams was carried out using CONTROLS testing machine in accordance to the requirements of BS1881: part118: 1983. The symmetrical two-point loading (at third points of the span) was adopted as shown in Fig.2 and Fig. 3. The beams were tested on their side in relation to the as-cast position. The load was applied without shock at a rate of increase in stress in the bottom fibre of about 12N/mm² per minute. In all the specimens, fracture occurred within the middle one-third of the beam. The flexural strength (or modulus of rupture) was therefore calculated on the basis of ordinary elastic theory using eqn. 2 and recorded to the nearest 0.1N/mm².

$$f_s = \frac{PL}{bd^2} \dots \dots \dots [2]$$

Where

f_s is the flexural strength (N/mm²); P is the maximum load at failure (N); L is the span of the beam specimen (mm); b is the breadth of the beam (mm) and d is the depth of the beam (mm).

3.3 Preparation and Testing of Split-Tensile Strength Test Cylinders

Split tensile strength test cylinders were prepared to conform to BS 1881: part 110: 1983 standards. Moulds used were of 150mm diameter and 300mm height. Each cylinder was cast, demoulded and cured in a manner similar to that applicable to the flexural beams except that each layer was rammed with 100 strokes of the punner. The split tensile cylinders are shown in plate 3.6b.

This test was performed as prescribed by BS1881: part117: 1983. After curing, the concrete cylinder was placed with its axis horizontal between the platens of the testing machine. In order to prevent very high local compressive stresses at the load lines, narrow strips of plywood were interposed between the specimen and the plates as shown in fig.3.2 and plate 3.9. The load was applied without shock and increased at a constant rate of stress of 0.02Mpa/s until failure took place and the concrete cylinder was split into two in the plane containing the vertical diameter of the specimen. The maximum load at failure was recorded and the tensile splitting strength was calculated and recorded to the nearest 0.05Mpa/s using the formula in equation 3. The CONTROLS digital testing equipment was used for this test.

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$$f_{st} = 2P/\pi Ld \dots\dots\dots [3]$$

Where P = maximum load, L = length of the specimen, and d = diameter of the specimen.

4.0 RESULTS AND DISCUSSION

4.1 Properties of Materials Used:

The properties of materials used in the study are summarized in Table 1.

Table 1: Physical Properties of Materials Used in the Study.

Material	Property	Value
Laterized Concrete	Workability	20 – 35mm
	Density	2164 – 2329kg/m ³
Laterite	Specific gravity	2.53
	Coefficient of Curvature	1.07
	Uniformity Coefficient	2.40
	Chemical constituents:	
	SiO ₂	49.5%
	Fe ₂ O ₃	30.61%
	MnO	10.32%
	Al ₂ O ₃	3.61%
	P ₂ O ₅	1.34%
	TiO ₂	1.11%
Sand	Specific gravity	2.66
	Coefficient of Curvature	1.14
Stone base	Uniformity Coefficient	3.5
	Specific gravity	2.56
	Coefficient of Curvature	1.33
Cement	Uniformity Coefficient	3.00
	Specific gravity	3.15
	Initial setting time	148 minutes
	Final setting time	215 minutes
	Unit weight	1440 kg/m ³
	Consistency	32%
	Soundness	0.58mm

4.2 Grading of Aggregates: The results of the sieve analysis of the aggregates are presented on Tables 2, 3 and 4 for laterite, sand and stone base respectively. Same results are plotted in Figures 2, 3, and 4 respectively. From the results, the laterite had a wide distribution of particles ranging from 0.075mm to 2.36mm in diameter, a uniform coefficient (Cu) of 2.4 and a coefficient of curvature of (Cc) of 1.07 thus the laterite was well graded.

The results also showed that the sand had particles that ranged from 0.15mm to 4.75mm, a uniformity coefficient of 3.5 and a coefficient of curvature of 1.14. The sand was also well graded.

The stone base particles ranged from 4.75mm to 63mm. Its uniformity coefficient and coefficient of curvature were 3.0 and 1.33 respectively. According to Smith (1970), the stone base was well graded since its coefficient of curvature falls between 1 and 3.

Table 2. Grain Size Analysis for Laterite Used

Sieve size (mm)	Weight retained (g)	% Weight retained	Cumm. % retained	% Passing
9.5	0.00	0.00	0.0	100.0
4.75	0.00	0.00	0.0	100.0
3.35	0.00	0.00	0.0	100.0
2.36	0.02	1.29	1.3	98.7
1.18	0.12	7.86	9.2	90.9
0.85	0.17	10.70	19.9	80.2

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0.60	0.37	23.71	43.6	56.4
0.40	0.42	27.32	70.9	29.1
0.25	0.28	17.91	88.8	11.2
0.15	0.14	9.28	98.1	1.9
0.075	0.02	1.42	99.5	0.5
<0.075	0.01	0.52	100.0	0.0
Total	1.55			

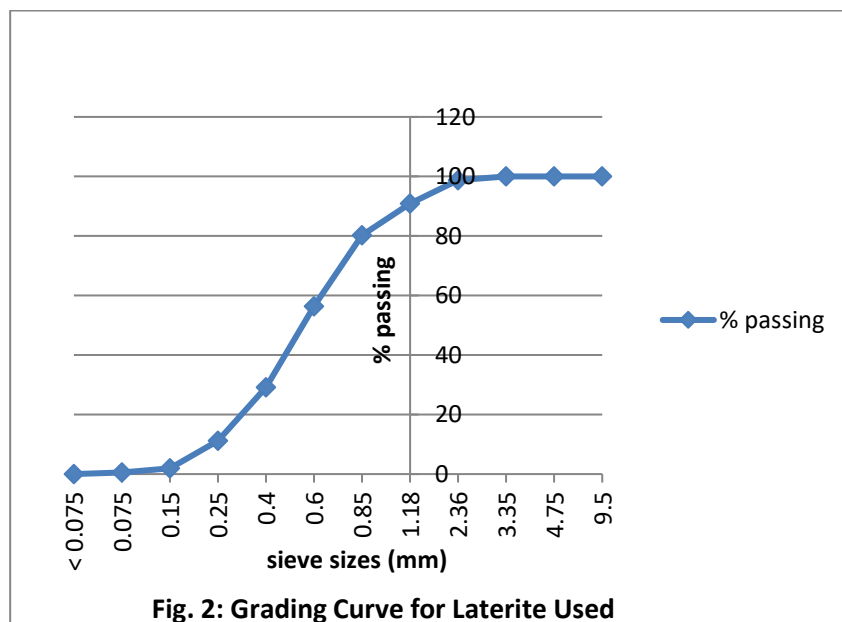
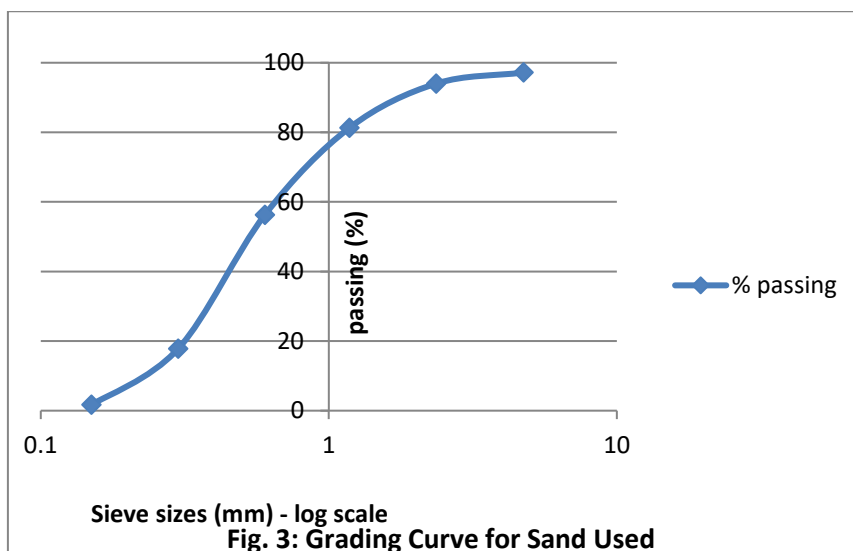


Table 3. Grain Size Analysis for Sand Used

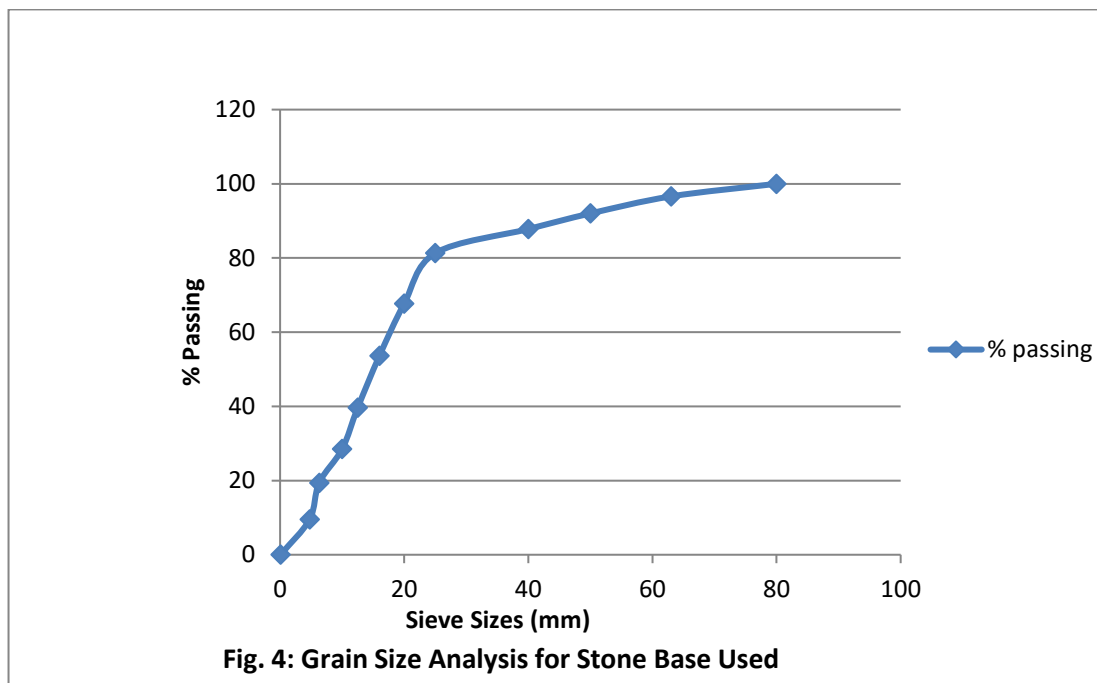
Sieve size (mm)	Weight retained (g)	% Weight retained	Cumm. % retained	% Passing
4.75	0.0265	2.782	2.8	97.2
2.36	0.0305	3.202	6.0	94.0
1.18	0.1210	12.703	18.7	81.3
0.60	0.2380	24.987	43.7	56.3
0.30	0.3670	38.530	82.2	17.8
0.15	0.1530	16.063	98.3	1.7
Pan	0.0165	1.732	100.0	0.0



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Table 4. Grain Size Analysis for Stone base Used

Sieve size (mm)	Weight retained (g)	% Weight retained	Cumm. % retained	% Passing
80	0.00	0.00	0.0	100.0
63	0.25	3.45	3.5	96.6
50	0.33	4.57	8.0	92.0
40	0.30	4.22	12.2	87.7
25	0.46	6.42	18.7	81.3
20	0.97	13.61	32.3	67.7
16	1.01	14.15	46.4	53.6
12.5	0.10	14.00	60.4	39.6
10	0.79	11.11	71.5	28.5
6.3	0.65	9.08	80.6	19.4
4.75	0.70	9.85	90.5	9.5
<0.075	0.68	9.54	100.0	0.0
Total	7.11			



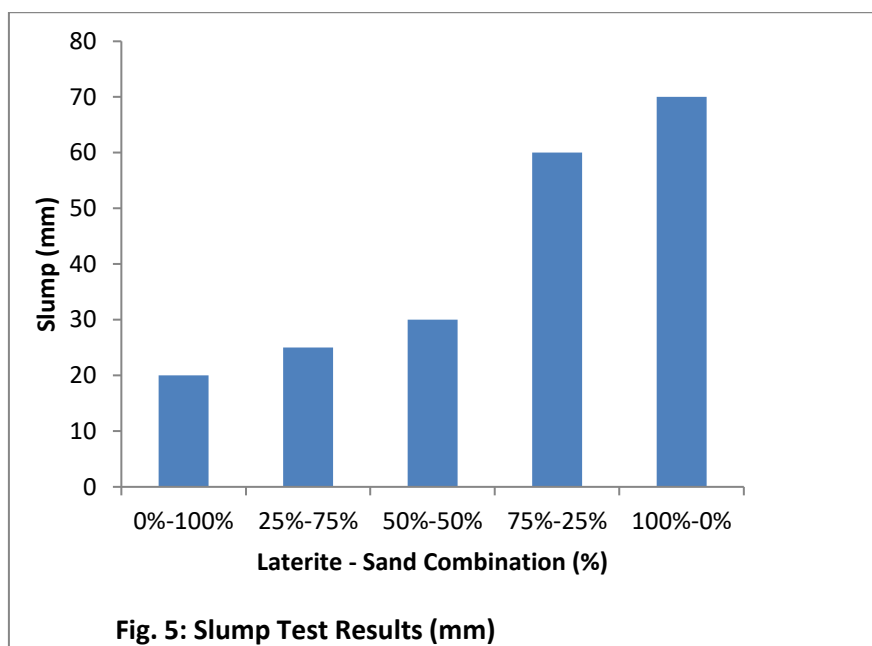
4.2 Workability of Stone Base Laterized Concrete

The workability test results are presented on Table 5 and Figure 5. The slumps ranged between 20 and 70mm and were all true slumps. At the water cement ratio of 0.5 that was maintained throughout all the mixes, the concretes were moderately quite workable. From the results, it was observed that the slump increased as the laterite content increased. This may be attributed to the fact that the increase in laterite content also led to increase in the quantity of fines in the mix thereby influencing the fluidity of the mix.

Table 5. Workability of SBLC

Combination (%)		Slump (mm)
Sand	Laterite	
0	100	70
25	75	60
50	50	30
75	25	25
100	0	20

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4.3 Crushing Strength of SBLC:

The averages of the crushing strengths of three replicate samples of stone base laterized concrete cubes obtained from this study are presented in Table 6. Figure 6a shows the variation of the crushing strength with days of curing while Fig. 6b shows the variation of the strength with the laterite content in the mix. From the test results, the crushing strength of stone base laterized concrete increases with age and decreases with increase in the percentage of laterite content. Stone base laterized concrete with 25% laterite and 75% sand attained strength of 23.6N/mm² which is 10% lower than the design strength of 25N/mm² at 28 days curing. With 100% laterite content, strength of 20.5 N/mm² was achievable. This strength is 20% percent lower than the 25N/mm² produce by the control mix. However, such strength is still useful for structural concrete construction. For 50 – 50 laterite – sand SBLC, strength of 23.2N/mm² was achieved. This strength is quite close to that of the control mix and can comfortably be used for structural constructions. SBLC follows the same trend maintained by other concretes at different ages of curing.

Table 6. Summary of the Crushing Strengths of Stone Base Laterized Concretes

% Combination		Crushing Strength (N/mm ²)				
Sand	Laterite	3 days	7 days	14 days	21 days	28 days
100	0	7.2 ± 0.27	15.1 ± 0.32	20.5 ± 0.70	23.2 ± 0.55	25.1 ± 0.51
75	25	6.8 ± 0.08	11.7 ± 0.35	18.9 ± 0.27	22.1 ± 0.61	23.6 ± 0.61
50	50	6.5 ± 0.18	11.1 ± 0.10	17.1 ± 0.52	20.8 ± 0.43	23.2 ± 0.66
25	75	6.3 ± 0.10	8.3 ± 0.42	14.3 ± 0.71	20.3 ± 0.51	22.4 ± 0.59
0	100	5.6 ± 0.15	7.5 ± 0.15	13.7 ± 0.50	19.6 ± 0.53	20.5 ± 0.38

4.4 Flexural Strength of SBLC: The average flexural strengths of SBLC obtained from this study are presented in Table 7a and Figures 7a and 7b. The same trend followed when considering the crushing strengths are equally maintained here. The flexural strengths increased with increase in the age of curing and also decreased as the laterite contents increased. The flexural strengths ranged between 3.33 – 3.93N/mm² at 28 days.

Table 7. Summary of the Flexural Strengths of Stone Base Laterized Concretes

% Combination		Flexural Strength (N/mm ²)				
Sand	Laterite	3 days	7 days	14 days	21 days	28 days
100	0w	3.40 ± 0.01	3.62 ± 0.02	3.66 ± 0.01	3.71 ± 0.03	3.93 ± 0.00
75	25	3.23 ± 0.00	3.55 ± 0.03	3.60 ± 0.01	3.68 ± 0.00	3.87 ± 0.03
50	50	3.15 ± 0.02	3.28 ± 0.01	3.30 ± 0.03	3.39 ± 0.00	3.58 ± 0.00
25	75	2.84 ± 0.00	3.13 ± 0.01	3.27 ± 0.00	3.35 ± 0.02	3.30 ± 0.03
0	100	2.48 ± 0.03	2.91 ± 0.03	3.20 ± 0.00	3.28 ± 0.01	3.33 ± 0.02

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4.5 Split Tensile Strength Of SBLC: The average split tensile strengths of SBLC obtained in this study are presented in Table 8 and Figures 8a and 8b. The results showed that the splitting strength increased with the age of concrete and reached a maximum value of 3.12N/mm^2 at 28 days of curing for the combination that contained no laterite (control samples). The 28th day splitting strength for the combination with 100% laterite stood at 2.61N/mm^2 . This shows a 16.3% reduction in the splitting strength. A 50/50 sand/laterite SBLC had a splitting tensile strength of 2.73N/mm^2 . This indicates a 12.5% reduction in the strength. Moreover, the split tensile strengths as observed from Fig. 8b also show decrease with increase in the percentage of laterite.

Table 8. Summary of the Split tensile Strengths of Stone Base Laterized Concretes

% Combination		Split tensile Strength (N/mm^2)				
Sand	Laterite	3 days	7 days	14 days	21 days	28 days
100	0	1.59 ± 0.03	2.42 ± 0.01	2.46 ± 0.02	2.67 ± 0.02	3.12 ± 0.03
75	25	1.23 ± 0.02	2.35 ± 0.02	2.39 ± 0.00	2.62 ± 0.02	2.91 ± 0.01
50	50	1.21 ± 0.01	1.99 ± 0.00	2.36 ± 0.01	2.51 ± 0.03	2.73 ± 0.00
25	75	1.19 ± 0.00	1.56 ± 0.05	2.14 ± 0.03	2.47 ± 0.01	2.69 ± 0.01
0	100	1.14 ± 0.02	1.41 ± 0.01	2.07 ± 0.03	2.42 ± 0.03	2.61 ± 0.02

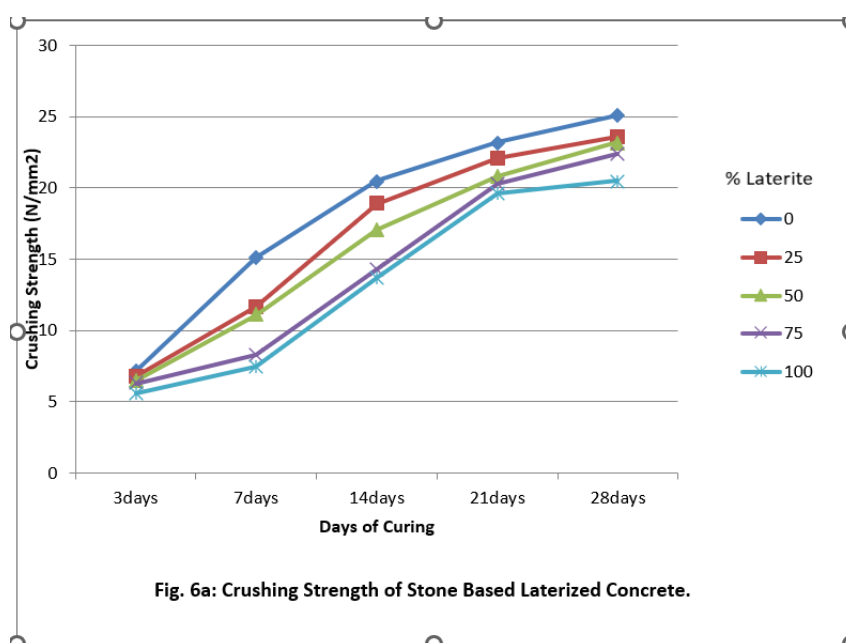


Fig. 6a: Crushing Strength of Stone Based Laterized Concrete.

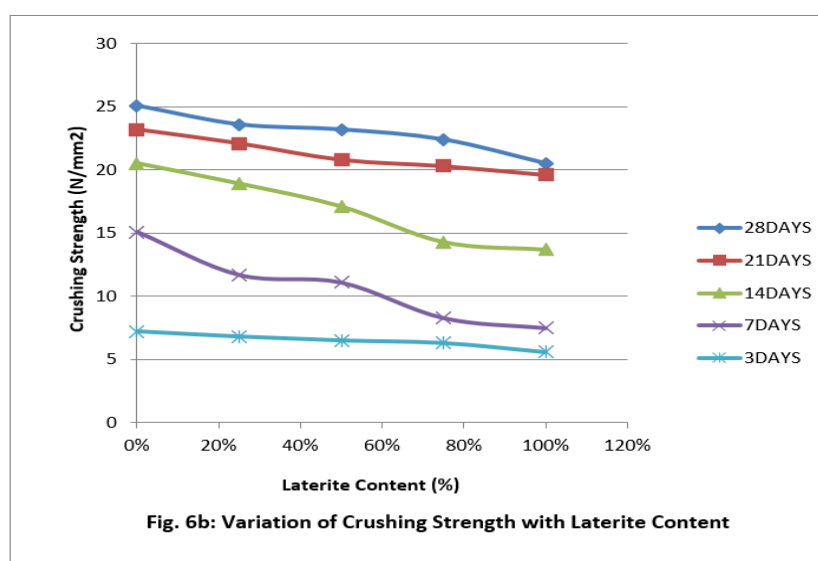
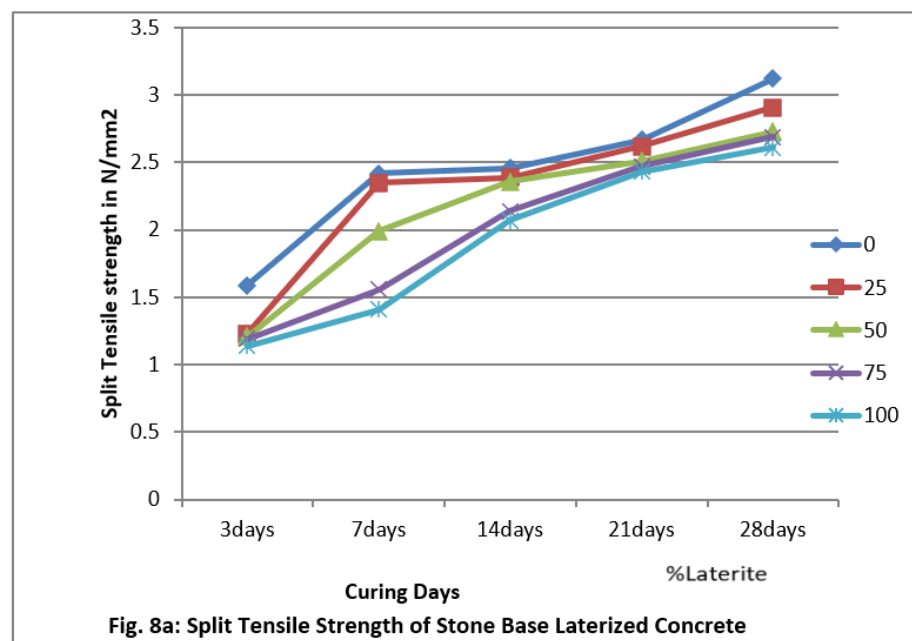
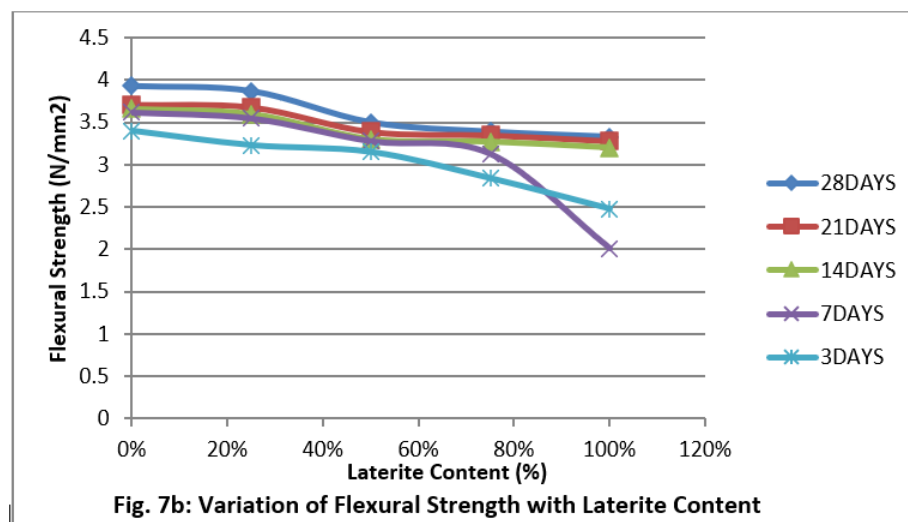
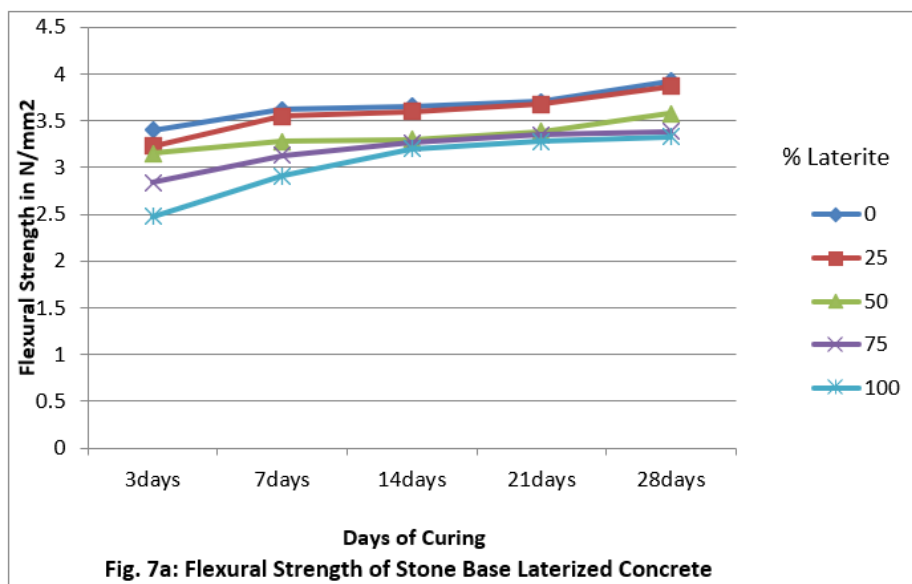
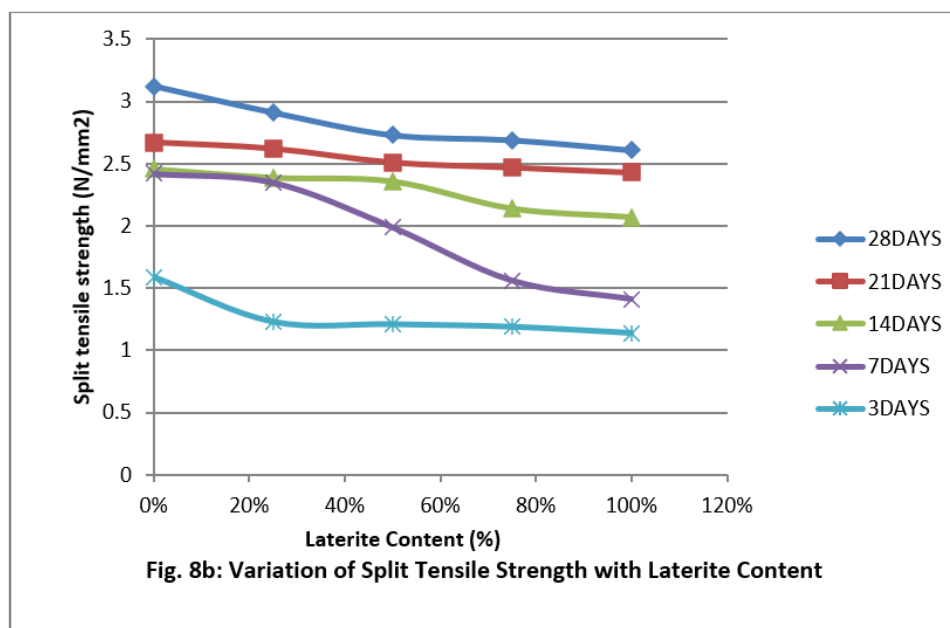


Fig. 6b: Variation of Crushing Strength with Laterite Content

Characteristics of Stone-Base Laterized Concretes



Characteristics of Stone-Base Laterized Concretes



5.0 CONCLUSION

Fresh stone base laterized concretes are very workable and all produced true slumps.

The crushing strength, flexural strength and split tensile strengths of stone base laterized concretes increase with the age of curing.

The strengths reduce with increase in the percentage of laterite in the mix.

Stone base laterized concretes have strengths that compare favourably with those of normal concretes and can be used for structural purposes.

REFERENCES

- 1) Osunade, J. A. The Compressive Strength of Laterized Concrete: The Effect of Types and Sizes of Coarse Aggregates. Masonry International Journal Bulletin, Vol. 7, No. 1. 1993, pp 1 – 4.
- 2) British Standards Institution. BS1881: Part 108. 1983. Method for Making Test Cubes from Fresh Concrete. London.
- 3) British Standards Institution. BS1881: Part 118. 1983. Method for Determination of Flexural Strength. London.
- 4) Gidigasu, M. D. 1976. *Laterite Soil Engineering*. Oxford: Elsevier Scientific publishers, Jackson, N. 1983. *Civil Engineering Materials*. Hong Kong: RDC Artser Limited.
- 5) Neville, A. M. 1996. *Properties of Concrete*. 4th ed. Malaysia: ELBS/Longman.
- 6) Udoeyo, F; Odim, O. & Iron, U. 2006. Strength Performance of Laterized Concrete. *Construction and Building Materials Journal*. 20.10: 1057-1062.



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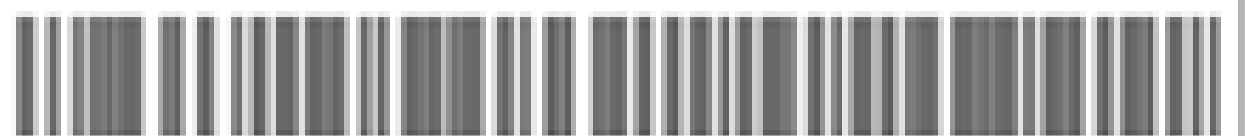
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